Journal of
CHRONIC
DISEASES

VOLUME 9 . NUMBER 3

MARCH, 1959

SYMPOSIUM

PSYCHIATRIC DISORDERS

Special Editor
LAWRENCE C. KOLB, M.D.

INTRODUCTION TO SYMPOSIUM ON PSYCHIATRIC DISORDERS

AS ONE surveys the current preoccupation of both public and professional groups with the study of illnesses that threaten mortality, the impression emerges that man pursues unabated and unmodified his eternal search for the fountain of youth. This preoccupation contrasts with the limited avidity with which man attacks the limiting of his capacity by those persistent and chronic illnesses that sap his social existence, the major arena of human living. This symposium, suggested by the Editors, is directed to the consideration of those illnesses which disturb particularly by his social living—the various personality disorders. The range of illnesses and their etiology is so wide that a discussion of a single entity alone, such as the psychoneuroses, might occupy the full pages of the issue of this Journal. There is a variety of conditions that come most frequently to the internist and general practitioner. The symposium concerns itself particularly with such problems.

Each of the contributors has been an active practitioner in the specialty of psychiatry, working closely with his colleagues in medicine and surgery. Each is a teacher of students and residents. Thus he presents his knowledge and his impressions in a manner expressive of his own personal experience in the field. From his vantage point as a psychiatrist in the field of public health, Dr. Gruenberg opens the symposium with a report on the positive contributions made by the medical profession at large in primary and secondary prevention of mental and emotional illness. He provides hints of areas where these contributions may be expanded. The topic of anxiety, thought by many to be the central issue in understanding personality development and disturbance, for this reason is the initial clinical presentation. In turn follow the paper by Dr. Meyer, which discusses the psychophysiologic expressions of anxiety and fear commonly referred to as psychosomatic, and that by Dr. Aldrich, which is concerned with the psychologic maladaptations to anxiety which we recognize as psychoneurotic.

The later papers provide, in turn, discussion of the commonly seen, yet often overlooked, minor psychotic reactions, the problems of the aged, and those difficult medical problems where addiction is used to alleviate anxiety. In closing, Dr. Kubie leaves us with the challenge of the partial cure, the result of the incomplete successes or defeats that result in the course of modern medical therapy.

LAWRENCE C. KOLB, M.D.
NEW YORK, N.Y.

VOL.
9
195

THE PREVENTION OF MENTAL DISORDERS

ERNEST M. GRUENBERG, M.D., DR.P.H.,*
NEW YORK, N.Y.

(Received for publication Dec. 1, 1958)

INTRODUCTION

IT IS perhaps unnecessary to point out now what Adolph Meyer argued polemically in 1910 that ". . . there is a hopeful field for prophylaxis and that insanity is not merely a matter of fate . . ."[1] Today's knowledge does equip us to prevent a small proportion of the many mental disorders which occur each year. Gains in knowledge and techniques will make us capable of preventing a larger proportion in the future. For these gains we must look to continuing research. But it is poor medicine to concentrate exclusively on what we do not know while permitting preventable cases of mental disorder to occur.

The following paragraphs draw attention to our present knowledge with particular reference to techniques available to practicing physicians. Such a review cannot possibly undertake to describe the techniques of diagnosis, prophylaxis, and treatment referred to (it is assumed that the reader is already familiar with these); it can only act as a sort of check list for the physician who wishes to take stock of the methods available to him (and which he is responsible for using) for preventing mental disorders. All of these methods are in use by some physicians in some places. It is believed that they all should be used when indicated by all physicians in all places and that their systematic use prevents some cases of mental disorders.

It would be a mistake to regard chronic illnesses in general as not preventable (witness the successes with tuberculosis, malaria, pellagra, trichiniasis, and others) or to regard all mental disorders as chronic (witness acute deliria, acute confusional states, acute panic reactions, short-lived hysterical conversions, acute anxiety attacks).

SOME GREAT SUCCESSES OF MEDICINE

In another article in this issue[2] some new problems produced by medical progress are pointed out. A clear perspective on the nature of the progress medical science is making in respect to mental disorders requires that we balance the nature and magnitude of these new problems against the reduction in the magnitude of old problems which the same decades of progress have accomplished. At the time that Adolph Meyer urged the profession to adopt a more hopeful attitude toward the prophylaxis of mental disorders, large numbers of

*Associate Clinical Professor of Psychiatry, Columbia; Technical Staff, Milbank Memorial Fund.

people were suffering disorganization of their mental lives from general paresis and from pellagra. Since then a new generation of physicians has grown up which has had little or no direct clinical contact with these two disorders that were such important causes of human suffering and of death just a short time ago. It is easy to forget that our current relative freedom from these sources is the result of continuing vigilance on the part of all physicians and of many health organizations. While our present knowledge regarding the dramatic

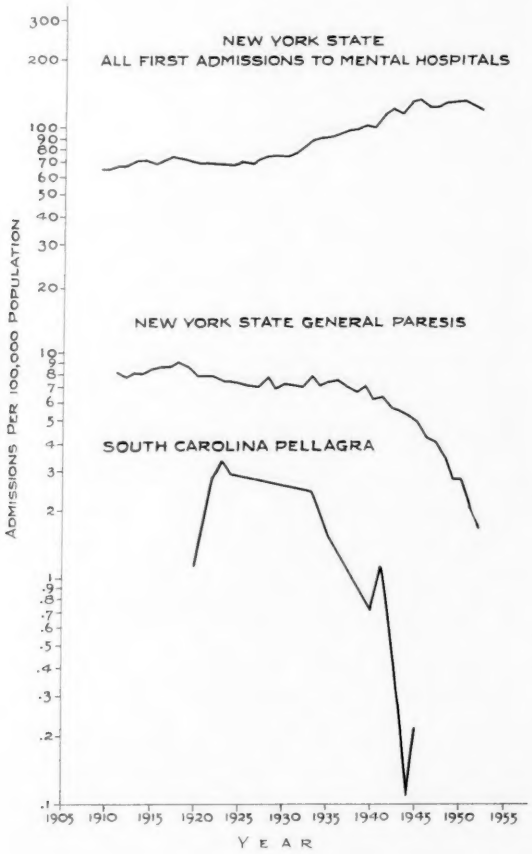

Fig. 1.

decline in the occurrence of general paresis and pellagric psychoses derives mainly from memories of presently living clinicians who have witnessed it, the official statistics of our mental hospitals reflect the same decline, although only in a pale and extremely crude way. Fig. 1 shows the decline in paretic admissions to mental hospitals and the decline in admissions of pellagric psychoses to give some notion of the dramatic importance of these two medical advances despite a simultaneous rise in mental hospital admission rates from all causes.

The decline in the occurrence of general paresis (and of other manifestations of tertiary syphilis) is due to the early diagnosis and effective treatment of syphilis by general practitioners, internists, general hospitals, obstetrical services, etc. Eradication of general paresis is still a matter for the future.

The decline in the occurrence of pellagra is due to changes in diet and in the agricultural economy of the southern states where it was formerly prevalent. In those areas its presence has not been eradicated and clinicians must continue to be aware of the early mental and physical signs of this readily cured syndrome.

SOME OTHER EFFECTIVE MEDICAL TREATMENTS

Even when the conditions listed in the previous section have not been prevented and after clinical evidence of physical disease or injury has become manifest, opportunities exist for avoiding the sequelae of brain damage which may produce mental disorders. While interrupting pathologic processes at this stage represents the early diagnosis and treatment of the physical diseases involved, from the viewpoint of mental disorder it is preclinical primary prevention.

The early diagnosis and treatment of tuberculosis, meningitis, and epidemic encephalitis are also important from the lifesaving point of view. The fact that this has been done has probably decreased the incidence of mental disorders. It is generally assumed that the early treatment of tuberculosis decreases the frequency of tuberculous meningitis, but this decline has not been objectively demonstrated. Whether any treatment available today would affect the frequency of permanent brain damage in epidemic encephalitis remains unknown and, hopefully, will remain unknown. Attempts have been made to modify the course of measles, mumps, and rubella with immune serum with the hope of preventing central nervous system sequelae; it is not possible yet to demonstrate clearly that these procedures do in fact decrease the likelihood of such sequelae.

THE PREVENTION OF DANGEROUS ILLNESSES

Some of the diseases which threaten the integrity of the central nervous system are preventable at a still earlier stage than early diagnosis and treatment.

The commonest preventable *infections* which lead to damage of the central nervous system are meningococcal meningitis, tuberculous meningitis, epidemic encephalitis, syphilis, measles, mumps, rubella, and—in some countries—a number of parasitic infestations. Meningococcal, tubercular, encephalitic, and luetic infections are so dangerous to the organism as a whole and to its life that the steps taken to control the spread of these infections are usually thought of in connection with the preservation of life and general health rather than as a mode of preventing mental disorders. There are additional reasons for controlling the spread of these infections emerging from the fact that among the survivors of the infections there are many persons who have suffered permanent brain damage which interferes with their personality functioning. However, the

control of mumps, measles, and rubella raises a different kind of question. These three "diseases of childhood" are ubiquitous; they are generally self-limiting and only rarely leave sequelae. But these sequelae can be of such a serious nature and have such long-lasting devastating effects on the function of the individual that serious thought should be given to controlling the spread of these infections. In fact, however, we do not have methods for protecting individuals from them; the only known method of insuring an individual of freedom from attack with one of these viruses is to provide him with an infection, since each gives long-lasting immunity after one attack. Although the mode of spread of these infections is well understood, it is not possible to prevent contact with early cases for more than short periods due to the widespread nature of the infections and the fact that the infectious phase of each precedes the development of well-marked clinical evidence of illness. Hence the only strategy of prevention available today is to plan infections at such a time that the risk of serious sequelae is minimized. It is easy to advise a family with both school age children and a young infant that it is unwise to allow the infant to develop measles, mumps, or rubella, but it is very difficult for a family to control the infection when the school age children become infected. One might consider that it is desirable for each school age child to develop these infections during kindergarten, but it is debatable whether advising parents to seek out infectious cases in order to expose healthy kindergarten age children is justifiable. Although this has been done and it has been done on medical advice, there are legal and moral issues involved which the medical profession and our society have not faced.

Rubella infection is considered to be most hazardous during the period of fetal development; hence attention has been directed to protecting pregnant women from this infection which is otherwise considered benign.[3] Here again the only practical mode of preventing infection during pregnancy is to insure infection before pregnancy. Planned epidemics among groups of isolated young maidens as a premarital (or precourtship!) rite has a certain romantic appeal as well as offering an opportunity for mental hygiene. Yet, again, the legal and moral issues which are involved in arranging for the planned infection of a person with an unmodified illness must be kept in mind. It is interesting to note that planfully infecting an adolescent girl with rubella (which has been done) is done not to protect her life but to protect the health of a yet unconceived child.

Poisons which affect central nervous system functioning may be divided from the preventive viewpoint into those affecting children, those associated with industrial hazards, those affecting adults in nonindustrial exposures, and those which are used as medicaments.

The preventable poisoning of a central nervous system most frequently affecting children is lead poisoning. It generally is due to eating lead-containing paint flakes. The main method by which physicians can help in its prevention is through the education of parents regarding the hazards involved in lead paints in rooms and yards occupied by children.

The preventable industrial poisons of the central nervous system also include lead inhalation, as well as the danger of mercury, manganese, carbon monoxide, and carbon disulfide. The syndromes produced by these toxins are

VOL. 9 195

described in textbooks of psychiatry. The control of these poisons in industrial circumstances is almost a subspeciality of medicine and public health itself and the techniques employed are described in various textbooks of industrial medicine. Maximum allowable concentrations were set in 1955 by the American Conference of Governmental Hygienists.[4]

Alcohol is so widely used socially for its effect on mental functioning that it is difficult at times to give full recognition to it as a poison. While it is relatively easy to recognize the intoxicated state and facile to say that it is preventable, in that drinking less alcohol would prevent intoxication, it is, in fact, extremely difficult to find ways of preventing persons who have developed a pattern of excessive, intoxicating drinking from imbibing excessive quantities of alcohol. The effects are both acute intoxication and, after a period of time, permanent organic damage to various parts of the body, not the least important of which is permanent brain damage. In our present state of knowledge it is probably misleading to speak of alcoholism as preventable, since no techniques have been established which will reduce the likelihood of an individual or a group of people becoming excessive drinkers short of prohibiting the sale of alcoholic beverages (which was tried and did not work). Nonetheless, it is certainly the duty of every physician to warn his patients regarding the short and long-term dangers of alcoholic intoxication.

A large number of drugs employed in the practice of medicine can, in excessive doses, or in the event of individual variation in susceptability, interfere with central nervous system functioning in such a way as to produce mental disorders. The most commonly employed and most dangerous of these drugs are bromides, cortisone and ACTH, isoniazid, the sympathomimetic amines, the sulfonamides, the thiocyanates, and belladonna. The syndromes of mental disorder associated with each of these are described in psychiatric textbooks. The control of drug administration is directly the responsibility of the physician who presecribes. The mental disorders produced by these drugs are not equally preventable in that the indications for the use of the drugs vary and at times the risk of a psychotic side-reaction is justified; in other cases the prolonged use of barbiturates, for example, to control minor symptoms in an already slightly brain-damaged individual is not justified. The main point is that the risk of undesired mental reactions to a drug is an inherent factor in the decision to prescribe or to renew a prescription and the primary responsibility of a physician is, when possible, to do no harm.

Mental disorders associated with *preventable nutritional deficiencies* are mainly due to vitamin B deficiencies. Of these, Wernicke's encephalopathy and pellagra psychosis are the most important. Pellagra is a totally preventable condition but continues to occur, with and without psychotic symptoms, in this country. It has developed unrecognized, even under medical supervision, due to food fadisms. Other cases are due to unrelieved poverty and ignorance. Wernicke's encephalopathy is most frequently associated with dietary deficiency connected with chronic alcoholism. This condition and delirium tremens can probably be prevented in the alcoholic by attention to diet even when the alcoholism remains uncontrolled. There is some reason to believe that with

improved attention to diet and the addition of nutrients to bread there has been some decline in the rate of occurrence of Wernicke's encephalopathy.[5]

Dietary deficiencies combined with drug intoxication, combined with cerebral arteriosclerotic brain damage, each of mild degree, are believed by some clinicians to lie behind some acute psychoses in elderly persons. At any rate, it has been reported by psychiatrists that not a few elderly persons brought to attention in psychotic states have improved rapidly on the withdrawal of drugs and the supplementation of diet, leaving the patient with slight evidences of arteriosclerotic brain damage but not psychotic. The medical care of elderly patients obviously calls for attention to diet and the cautious use of drugs, particularly when the patient is edentulous or has signs of early brain damage or when the use of drugs is necessary over a prolonged period of time.

There is recent evidence to suggest that fetal brain development may be distorted by maternal dietary deficiencies. Theoretically this is quite possible; experimentally it has been demonstrated in cats[6]; practically there is a question of which women at present are experiencing a deficiency of such a nature and intensity as to increase the likelihood of congenital anomalies of the central nervous system. The available evidence links certain mental and neurologic disorders with toxemias of pregnancy[7-11] and toxemias of pregnancy with deficiencies in vitamins and first class proteins.[12] A number of studies are in progress which can be expected to throw further light on this relationship in the next few years. However, in the interim it might be wise to give attention to protein and vitamin intake of pregnant young women and to question some recommendations regarding the importance of preventing weight gain during pregnancy and the fads of some young women for keeping a "slim figure," particularly if these are done at the expense of vitamin, mineral, and protein intake.

Head injuries sometimes lead to permanent brain damage. The location and extent of the lesion and the age at which the head injury occurs affect the type of residual syndrome. There is also reason to believe that the nature of the syndrome and the severity are partly dependent upon the previous personality structure and defects. All this, however, is of little practical importance in preventing head injuries. Exposure to forces which can lead to head injuries occurs in connection with ordinary daily living, in connection with occupations, and in connection with recreation. Highway accidents fall in all three categories; while there has been considerable progress in reducing the risk of serious highway accidents in terms of miles driven, the total amount of automobile travel has been rising so rapidly that highway travel has become the outstanding cause of injury in America. Occupational hazards can be reduced by a variety of methods employed in industrial medicine and hygiene. There is an increasing tendency to regard recreational hazards as worthy of more careful consideration. In this connection the protection of persons participating in violent sports, particularly boxing and football, is the subject of serious concern, particularly among school physicians.

Mental disorders due to specific *gene* differences are, in general, not preventable at present. The role of genes in illness varies from conditions in which the genes are the only known etiologic factor, through those in which they are known

to be the main factor in some cases and not a major factor in other cases, to conditions in which there are known interaction patterns between gene and environmental factors. While there are a number of mental disorders in which it is known that genes play a role, for most of these the exact mode of transmission is insufficiently known or there are known to be such large environmental factors operating that knowledge of the fact of genetic predisposition does not lead to practical steps for prevention. It is known, however, that amaurotic familial idiocy and phenylpyruvic oligophrenia are produced by genes in a simple Mendelian recessive pattern. It is thus possible, in the rare circumstances where a definite pedigree involving either of these conditions occurs, to give something resembling a definite genetic prognosis. In such instances one can counsel couples and give them a definite idea of the risk they will run of having a severely handicapped child.[15] In other instances of parental concern regarding possibly defective or disordered offspring, there is much less basis for providing definite advice in predicting risks. Consequently it is important to explain to inquiring couples that knowledge is not well established, that every pregnancy involves a risk of abnormal offspring, and that a majority of congenital abnormalities are very likely not due to inherited genes but to other factors operating during embryonic and fetal life.[15] When couples ask physicians whether it is desirable for them to have children because of a presumed genetic risk, it is important to appraise the basis of the question. To me the most important issue is whether or not the couple are willing to bear the risk of producing an abnormal child and appear able to take responsibility for the child in such an event. If they are not, it would not appear wise to encourage them to have children regardless of the genetic facts available. If they are, it would not appear important to them whether their risk were twice or six times as great as other couples. However, the physician must remember that, with the two exceptions mentioned above, it is not likely that systematic restriction of conception in selected couples will prevent many mental disorders by modifying the genetic composition of the next generation; our knowledge of the relationship between genes and mental disorders would not support such a prediction.

PREVENTION OF PSYCHOGENIC CAUSES

A large amount of literature has appeared bearing on the importance of satisfactory emotional relationships in infancy and early childhood for the development of personality. The available evidence strongly supports the notion that human mental life is highly dependent upon the existence of relationships with people emotionally attached to the child. In the absence of nurturance from persons attached to the child, eating and sleeping patterns necessary for survival may not become established. There is evidence which strongly suggests that permanent impairment of mental development may occur when infants survive periods of impersonal care. Since no one argues the advantages of impersonal care for infants, better evidence than that now available is not needed to justify strenuous measures to assure every infant and young child a mothering person. Physicians may expect to encounter situations in which

this danger is present when mothers of young infants experience illnesses which require hospitalization, or lead to death, or when mother and child must be separated because of the danger of infectious illnesses, social disruptions (such as the mother's imprisonment or forced migration), or litigations. Under such conditions it is the physician's responsibility to insure the continuity of the infant's personality nurturance as it is for him to guard family contacts from an infectious case of tuberculosis. The rapid permanent placement of orphaned infants in suitable adoptive families is highly desirable.[16]

While there is practically no reason to question the need of infants for a continued emotional attachment, there is controversy regarding the effects of temporary separations (lasting a few days, weeks, or months) from the mothering figure and of the capacity of infants and young children to adapt to new personal relationships.[17,18] The physician should, however, remember that young children go through emotional crises in connection with separations and necessary shifts in mother figures. The controversies have to do with the long-term consequences for personality development of such crises.

Many authorities believe that next to the absence of a mother figure certain patterns of parent-child relationships are the source of many mental disorders. From the practical point of view, however, it must be remembered that many of the same authorities regard most of the presumptively unhealthy parent-child relationships as immune to superficial efforts by outsiders at improvement. The most the physician can do is to offer the parent an understanding, reassuring relationship regarding his adequacy as a parent, since many parental reactions are the result of excessive anxiety. The next most helpful thing he can offer the child is a relationship which recognizes the child's existence as a person independent of his parental relationships. Children need relationships with other adults besides their relatives; among these the physician may be a potent figure because of his social prestige and professional independence.

The psychic factors which can produce mental illness also work progressively over a period of time; interruption of them will presumably reduce the extent of damage. Even children who have become marasmic under a regime of impersonal care may be restored to apparently adequate functioning by the introduction of a mother substitute in their lives.[19] The ultimate consequences for personality development are not known at present.

SECONDARY PREVENTION

It is conventional when describing preventive activities to characterize the termination of the progress of a disorder which has already become clinically manifest as secondary prevention. Arresting illness and preventing sequelae are often referred to as "early diagnosis and effective treatment." An adequate review of this level of prevention would require an appraisal of the entire field of psychiatric diagnosis and therapeutics, a topic far beyond the scope of this article. However, despite the vagueness and lack of consistency in much psychiatric diagnosis and the uncertainty regarding the efficacy of many psychiatric treatments (and without accepting at face value all aspects of the present atmo-

VOL. 9 195

sphere of therapeutic optimism in psychiatry), it is possible to recognize that some clinical conditions are capable of identification and modification through early treatment. In addition to certain infections (e.g., syphilis, meningococcal meningitis), certain poisons (e.g., lead, manganese, and mercury), and certain forms of malnutrition (e.g., pellagra, maternal deprivation), there are effective treatments today for conversion hysteria, certain forms of depression, and toxic deliria.

Conversion reactions are a form of psychoneurosis and should receive expert specialist treatment. It is particularly important that this group of patients with mental disorders be referred promptly for competent psychiatric care. While the highly characteristic conversion reaction is fairly readily recognized, it is important to differentiate such cases accurately from schizophrenia, organic disorders, and malingerers. Depending upon the total appraisal and the function which the conversion symptom is playing in the life of the patient, therapy may be initiated either with general psychotherapeutic goals, leaving the symptom to be dealt with in the course of the patient's better understanding of the sources of his own anxiety and mechanisms for dealing with them, or the symptom itself may be attacked first through direct suggestive techniques, in-including hypnosis. Unrecognized conversion symptoms become very persistent in some cases and may even lead to total physical disability. Alertness to the possibility of conversion reactions should be present whenever patients exhibit loss of functions (vision, skin sensibility, voluntary muscles, etc.) which are not clearly due to a recognized physical lesion. It is not necessary for a person to be completely free from all physical diseases to have a conversion reaction, and this diagnosis is not one of exclusion but is based upon positive findings. Treatment, even if it only succeeds in removing symptoms, can make a great difference in the patient's life.

Depressions occur in a large number of disorders and are of all intensities and durations. A mood of despair and hopelessness, particularly when accompanied with slowed speech and body movements, is an indication for psychiatric referral. Only a few years ago many persons with long-standing severe depressions could be seen in any mental hospital—some in depressive phases of manic-depressive psychoses, some in depressed states associated with the involutional period of life, and some suffering from other forms of depression. Today long-term depressions are rare in psychiatric practice, largely because of the usefulness of electroconvulsive therapy in shortening the duration of these states. Some drug treatments are possibly also of benefit. Psychotherapy often plays an important role in the treatment of depressions. It must be recognized that electroconvulsive treatment is a purely empirical method of shortening the duration of depressions and no more deals with the causes of depressions than aspirin deals with the cause of a headache or a fever. However, depressions are so disabling that even symptomatic relief is important. While obvious depressions are readily recognized the physician must beware of missing the depression which expresses itself in the form of delusions about body functioning. Patients who can feel their viscera and feel certain that there is some peculiarity about the way some organ is functioning or that they are diseased deserve a physical examina-

tion, of course. But they also deserve a moment of thought as to whether or not these ideas are depressive delusions; patients with depressive delusions of physical illness are sometimes not conscious of feeling depressed or downhearted.

Toxic deliria are not infrequently mistaken for psychogenic or organic psychoses of other types. Bewilderment, shifting levels of consciousness, and exacerbation of confusion at night are a few of the characteristics which justify suspicion of a toxic delirium. Since these conditions often arise during the course of medical treatment, the physician generally terminates or cares for such deliria without reference to psychiatrists. External toxins must be identified and withdrawn—sometimes these toxins are medications and sometimes they are the industrial or environmental poisons discussed earlier. In the presence of uremia, fever, anemia, etc., meticulous attention to the restoration of metabolic balance frequently can reduce the disturbance of central nervous system functioning. Besides these obvious procedures a great deal can be done to reduce the confusion of delirious persons through persistent attention to providing intense, repeated, and particularly clear orienting stimuli. Persons well known to the patient provide a form of reassurance which no one else, no matter how skilled, can provide. Good lighting, clear statements as to the identity of people talking to the patient, and explanations of procedures before they occur and afterward all help to orient people in toxic deliria. While psychiatric consultation is sometimes needed and can often be helpful, the management and termination of toxic deliria are essentially a medical and nursing task.

VOL
9
195

PREVENTING DISABILITY AND REHABILITATION

The restoration of abilities which have been lost as a result of illness or its treatment (rehabilitation) and the arrangement of patient care so as to minimize the loss of abilities are known as tertiary prevention. At present the prevention of disability among persons who have mental disorders is one of the most fruitful areas of preventive psychiatry.[20] Even in the presence of the most severe illnesses and mental deficiencies, there is ample scope for the use of our present understanding to prevent the development of severe disabilities. Indeed, as in the field of physical rehabilitation, it is in the most severe cases that the greatest difference in disability occurs, depending upon the type of care which is made available. Much unnecessary disability is presently produced in schizophrenic and mentally deficient individuals because practitioners and medical institutions underestimate the capacity of patients for maintaining and developing occupational, family, and social roles. Our mental hospitals are beginning to refuse to cooperate with those cultural and social forces which regard the mentally disordered person as lost to all future participation in community and family life. This means that the practicing physician will have to learn to offer his services to mentally disordered persons and to cooperate with the psychiatrists in charge of their psychiatric treatment. Of course, physicians have always had mentally disordered persons among their patients but have not always recognized how severe some of the illnesses were. With increasing diagnostic acumen there was a tendency, for a period, to turn over to the mental hospital comprehensive

responsibility for the care of those with recognized mental disorders. However, as it has become recognized that this is often a damaging procedure, a need has arisen for physicians to play their role in the care of the chronic mental patient who is residing in the community. In the next few years many patterns of relationship between psychiatrists and other specialists and with family physicians will be explored and reported in the literature. No detailed patterns have become standard or are likely to. The underlying principle of existing patterns is that the nonpsychiatric physician's services must be available to the person with a chronic mental disorder as well as to other people. Because the tactful and sensitive physician is aware of the fact that persons with chronic mental disorders may react differently to his words and behavior, there is a tendency toward constraint when he becomes conscious of the presence of mental disorder. He is also likely to think of the disturbing reactions of the patient as due to the chronic mental illness. However, although the presence of chronic disorders will sometimes increase the intensity of an emotional reaction or lead it to be expressed in indirect ways, the basic language of personal relationships is the same for the well and the ill. Hence the physician who is sensitive to the unexpressed (or indirectly expressed) emotional reactions of his patients who are not suffering from schizophrenia, mental deficiency, or some other chronic mental disorder will not be hard put to recognize the emotional needs of these patients. It is this fact which provides the present bridge between psychiatrists and other physicians in the care of their patients and which offers so much hope for the prevention of unnecessary disability among persons with chronic, incurable mental disorders.

Although prevention is better than cure and cure is better than palliation and the prevention of disability, the present level of technology in preventive psychiatry gives us the tools for affecting the lives of many persons in the last-named way. Earlier in this article some of the ways in which prevention may be accomplished were briefly described, and reference was made to the existence of definitive treatment for certain identifiable illness. ". . . insanity is not merely a matter of fate . . ." so long as we remember that: (a) the fetus is *not* a "perfect parasite," (b) the cranium and the "blood-brain barrier" are *not* perfect protectors of the central nervous system from injury, infection, poison, and malnutrition, (c) mental disorders do *not* always prevent people from filling family, work, and social roles or keep them from learning from experience, and (d) human nature is *not* unchangeable but is modifiable by personal relationships.

REFERENCES

1. Meyer, Adolph: Collected Papers, Johns Hopkins Press, **4**:165, 1952.
2. Kubie, Lawrence S.: The Challenge of the Partial Cure, J. CHRON. DIS. **9**:292, 1959.
3. Rubella and Pregnancy (Edit.), J.A.M.A. **165**:688, 1957.
4. Threshold Limit Values for 1955, adopted at the Seventeenth Annual Meeting of the American Conference of Governmental Industrial Hygienists, A.M.A. Arch. Indust. Health **11**:521, 1955.
5. Noyes, Arthur P., and Kolb, Lawrence C.: Modern Clinical Psychiatry, ed. 5, Philadelphia, 1958, W. B. Saunders Co., p. 299.
6. Wortis, Joseph: Medical Treatment, *in* The Evaluation and Treatment of the Mentally Retarded Child in Clinics. III. Team Work and the Treatment of Mentally Retarded Children, National Association for Retarded Children, Inc., New York, 1956, p. 53.

7. Lemkau, Paul V.: Epidemiological Aspects, *in* The Evaluation and Treatment of the Mentally Retarded Child in Clinics. I. Factors in the Evaluation of Mental Retardation, National Association for Retarded Children, Inc., 1956, pp. 16-27.
8. Kawi, Ali, and Pasamanick, Benjamin: The Association of Factors of Pregnancy With the Development of Reading Disorders in Childhood, J.A.M.A. **166**:1420, 1958.
9. McDonald, Alison D.: Maternal Health and Congenital Defect. A Prospective Investigation, New England J. Med. **258**:768, 1958.
10. Pasamanick, Benjamin: The Epidemiology of Behavior Disorders of Childhood, Chapter XVI. Neurology and Psychiatry in Childhood, *in* 34th Proceedings of the Association for Research in Nervous and Mental Disease, Baltimore, 1956, The Williams & Wilkins Co., pp. 397, 403.
11. Lilienfeld, Abraham, and Pasamanick, Benjamin: The Association of Maternal and Fetal Factors With the Development of Cerebral Palsy and Epilepsy, Am. J. Obst. & Gynec. **70**:93, 1955.
12. Tompkins, W. T., and Wiehl, D.: Toxemias and Maternal Nutrition, *in* Promotion of Maternal and Newborn Health, New York, 1955, Milbank Memorial Fund.
13. David, P. R., and Snyder, L. H.: Genetics and Preventive Medicine. Chapter II *in* Leavell, H. R., and Clark, E. G.: Textbook of Preventive Medicine, New York, 1958, McGraw-Hill Book Co., Inc.
14. Lancet (Annotations): Congenital Galactosaemia, **2**:77, 1955.
15. Warkany, Josef: The Role of Congenital Anomalies in the Etiology of Chronic Diseases, J. CHRON. DIS **3**:46, 1956.
16. Gruenberg, E. M.: Application of Control Methods to Mental Illness, Am. J. Pub. Health **47**:944, 1957.
17. Lewis, Hilda: Deprived Children, London, 1954, Oxford University Press.
18. Bowlby, John, Ainsworth, Mary, Boston, Mary, and Rosenbluth, Dina: The Effects of Mother-Child Separation: A Follow-up Study, Brit. J. Med. Psychol. **39**:211, 1956.
19. Richmond, Julius B., and Lipton, Earle: Observations on Psychological Development of Infants: Development of Feeding, Sleep and Motility Patterns, *in* J. B. Liebman, ed.: Emotional Problems of Childhood, Philadelphia, J. B. Lippincott Company.
20. Hunt, Robert C.: Ingredients of a Rehabilitation Program, *in* An Approach to the Prevention of Disability From Chronic Psychoses—The Open Mental Hospital Within the Community, New York, 1958, Milbank Memorial Fund.

VOL. 9 195

ANXIETY AND THE ANXIETY STATES

LAWRENCE C. KOLB, M.D.
NEW YORK, N. Y.

(Received for publication Dec. 1, 1958)

OL.
9
959

THE understanding of anxiety is the central issue underlying the understanding of behavior and its expressions in the mental life and physiologic reactivity of modern man. While the psychiatric literature on the subject of anxiety and the anxiety neuroses is concerned largely with refining the concept,[16,23,25] the psychosomatic[3,17] and medical publications have centered attention upon the physiologic responses which occur as the consequence of stress. There is little to suggest a useful interchange of knowledge between the several working groups. In the clinic it is apparent that the physiologic expressions of anxiety are often misinterpreted as of symbolic significance and origin by the psychiatric specialist while the internist frequently expends unnecessary energy concentrating upon somatic symptoms but ignores and frequently fails to appreciate the important underlying issues of the personality of his patient, his common phobic defenses, and the study of the anxiety-inducing situation. In some measure it is the intent in this article to bring together these parallel and complementary lines of interest and information and relate them historically and in the context of modern practice.

The modern interest in anxiety had its beginnings with Freud's description, in 1894,[9] of the anxiety neurosis as an entity separate from and distinguishable from neurasthenia and other neurotic processes. This early paper remains most interesting reading. It is refreshingly clear and a model of clinical observation as it describes well the general state of apprehensiveness, the usual personality of the sufferer, the precise clinical symptomatology of the acute anxiety attacks, and the frequently associated phobic psychology. Freud inferred that the symptoms of this state were determined physiologically and postulated, on the basis of the histories obtained from his limited number of patients of sexual frustration, that the mechanism was determined by the failure to properly discharge sexual energy. This, in turn, led to damming up of tensions which was expressed through unknown physiologic channels. Freud's explanation of the damming up of sexual energy was immediately challenged by other clinicians who presented case histories wherein they found no evidence of sexual disturbances. Reading these challenging case histories now suggests that the problem of sexual frustration was not paramount in these instances but rather arose due to the need to control hostile drives or frustrated dependency needs. Flushed with enthusiasm for his youthful findings and theory, Freud dealt with his first critics in cavalier manner.[10]

In 1926 Freud modified his concept of anxiety, probably as the result of confrontation with the problems of the neuroses of war. He now distinguished two types of anxiety. Primary anxiety referred to the condition which exists when an individual is overwhelmed by helplessness in the face of a mass stimulation, the type of undifferentiated response that might be seen in infants and children or in adults confronted with a task beyond their capacities. The second type of anxiety was seen by him as a signal of an impending danger recognized within the individual. Furthermore, in response to this signal, various psychologic and physiologic responses follow to defend the individual from the threatened danger. The various psychologic defenses, including repression, conversion, dissociation, displacement, reaction formations, etc., are well described and are now generally well known.[8]

Anxiety is differentiated generally from fear and those states of tension which exist as the consequence of failure to satisfy the basic needs for food, fluids, oxygen, or warmth. While fear is the emotional reaction consequent to an external threat to the integrity of the individual, anxiety is defined situationally as the response, or the overdetermined response, which ensues without evidence of an external threat to physical integrity or which may persist inappropriately for prolonged periods after such a stress. Anxiety is the consequence of the individual's peculiarly personal perception of his environment or of his own internalized psychologic processes. These personal peculiarities are considered now to represent the genetically determined and constitutionally modified capacities of the individual and the resultant perceptual responsiveness determined over the years by the particular experiences of each individual in his own family and culture. Perhaps in no other species are the determinants for individual responsivity to the environment so varied and complex as in man. With his long period of dependence upon parents, his development of language, and the capacity for symbolic representation, he responds to a range of symbolic threats far beyond that of any other species. Furthermore, the complexity of the development of the human nervous system allows the permanent imprinting of these early experiential determinants for responsivity at later dates.

With the development of personality, there emerges the effort to control sexual and aggressive urges in terms of the customs of family and culture. In addition the adult is required to suppress his demands for emotional dependency upon others and accept and adopt responsible positions and values which challenge his relations with others. Thus internalized psychologic conflict may be aroused either by overt interpersonal conflicts in which the individual is exposed to the emergence of sexual or aggressive (hostile) drives to others, or to threats of loneliness by separation from a needed partner. Or he may, in the course of his own intrapsychic activity, evolve anxiety as a consequence of his fantasy life which re-enacts such conflictful thoughts and emotions, or suffer anxiety when similar conflicts are aroused in his dream life at night.

Psychoanalysts have focused their attention on the structure of the psyche and the conflicts which ensue between superego and id as well as the nature of the emotion that is defended against by the arousal of anxiety. In the twenties,

VOL. 9 195

Horney and others stressed the importance of hostile urges in arousing anxiety. Currently interest is centered on loneliness, tenderness, and love as emotions that are threatening and must be defended against or adapted to. To May[16] the changing emphasis on the various urges precipitant to anxiety-arousing conflicts is a reflection of the cultural emphasis of the times. In the clinic today one is confronted with patients in whom any or all of these urges may be seen to arouse anxiety.

Perhaps the best operational definition of anxiety is given by H. S. Sullivan.[23] He describes anxiety in the context of interpersonal relations as a state of tension existing when the individual expects an unfavorable estimate of himself by another significant person. This definition means no more than those generally implied in the earlier psychoanalytic literature but provides the clinician working with the average civilian the needed clue for searching the life experiences of the individual and perceiving the pertinent incidents that lead to arousal of anxiety. The clinician must detect all the significant relations of his patients, ascertain their current status, and relate those that appear decisive to similar interpersonal events in the earlier life of his patient. The latter will be found to have set the capacity of the individual to respond repetitively in an overdetermined manner to the particular stimulus situation which leads to the eruption of either an excessive emotional response or to generate an emotion unacceptable to the values of that personality. The clinician must be sensitive that this operating definition includes those representations of such events in the day fantasies or night dreams of his patients.

Anxiety is an ubiquitous experience in modern society. Psychologists have raised the question as to whether the experience is constructive to the development of personality or generally disruptive. There is evidence to show that levels of anxiety within the capacity of the individual to fuse are conducive to learning and growth. Mass arousal in a child or an adult is disruptive of personality function and may lead to permanent disorder best exemplified in the chronic neuroses induced by war experience. As physicians, the major issue rests with the recognition and treatment of pathologic states of anxiety.

THE ANXIETY NEUROSIS

There has been little enlargement of the descriptive symptomatology of this condition since Freud's paper of 1894. For the most part, later studies have only elaborated his careful clinical description. In this paper specifically were mentioned the occurrence of general irritability, anxious expectation (the nuclear symptom of the neurosis), the episodic anxiety attack, awakening at night in fright, vertigo, phobias, and gastrointestinal sensations such as nausea and biliousness. The symptoms which occur with the episodic anxiety attacks were delineated carefully and included palpitation, disturbance of respiration with dyspnea, or attacks similar to asthma, sweating, tremor and shuddering, hunger and giddiness, diarrhea, vertigo, and paresthesias. It is remarkable to note that the symptoms presented as existing in the acute anxiety attack are precisely those now recognized as characteristic of the hyperventilation syndrome.

Unacquainted with this syndrome, which was not then recognized as a clinical entity, Freud did interpret these symptoms as due to a physiologic disturbance. Both the nature of the symptoms and the histories of various difficulties in their sexual lives led him to conclude that anxiety was the consequence of damming up of sexual energy. His women patients described anxiety when first exposed to the sexual act, where marriage was disturbed by husbands who suffered from premature ejaculation or impaired potency, or when coitus interruptus was practiced. He also observed the anxiety neuroses to occur in widows and those voluntarily abstinent and in the climacteric during the great increase of sexual need. In men, Freud found the anxiety neurosis to appear during frustrated sexual excitement prior to marriage, in those who practiced coitus interruptus, and in those with neurasthenia, who, after practicing masturbation, fell victim when they desisted. He recognized that there was often a diminution of sexual drive with this neurosis and suggested as an explanation a deflection of somatic sexual excitation from the area of sexual activity through the anxiety attack. In this paper it was pointed out that anxiety symptoms could occur also in combination with those of neurasthenia, hysteria, the obsessional states, and melancholia. This early paper failed to explain the initiation of the anxiety neurosis after shocking experiences such as the death of a loved one, the threat of such an occurrence, or following arguments with other persons.

VOL. 9 195

The precipitating threat varies from person to person depending upon the particular neurotic trend that exists within the individual. In those individuals where anxiety is allayed only by a clinging dependence upon another person, the anxiety attack occurs with any threat of desertion by the other person whether the threat is offered by the person or exists as the consequence of a thought or act on the part of the patient which he interprets as offensive and cause for the other to separate from him. On the other hand, in an individual whose anxiety is relieved only by unqualified admiration of parents or others, anxiety may be expected when he is placed in a situation where he remains unobtrusive and unrespected. When relief from anxiety exists only on the maintenance of a social appearance of respectability, the arousal of sexual drives or feelings of aggressiveness that may be perceived by him as a threat to the maintenance of his respectability will lead to the eruption of anxiety.

As with other neuroses, the personality structure of the individual is of utmost importance in those with an anxiety neurosis. The chronically anxious individual often has a personality characterized by persistent tension and apprehension, timidity, unusual sensitiveness to the opinions of others with easy embarrassment, and tendency to worry. Such individuals are given to feelings of inferiority, are self-deprecating, have difficulty in arriving at clear decisions, and are fearful of making mistakes. Frequently they are overconscientious, ambitious, and driven to live up to exacting standards and aspirations.

It is usual to learn from their developmental history that the chronically anxious sufferer was brought up in a family where the parents demanded much of him, yet at the same time were insistent that he perfectionistically adhere to the mores of their society. Confidence and self-esteem failed to develop well due to the nagging insistence and criticisms of the parents for propriety and

appearance. Frequently one or both of the parents has been phobic and abnormally fearful, and in the course of the family relationship emphasized for the growing child the possibility of threat in every life situation.

GROSS STRESS REACTIONS

With the growing appreciation of the disrupting effects of severe threats on personality functioning observed in wartime or in the face of catastrophic events in civil life such as automobile accidents, fires, volcanic eruptions, and floods, and coupled with the concept of stress, the psychiatric specialty has recognized as a separate diagnostic grouping the gross stress reactions. Included among the gross stress reactions are the old "fright neuroses" of the Germans, the anxiety states, and a variety of transient and severe personality disruptions which sometimes simulate psychotic disintegration. The majority of individuals exposed to direct threat to their integrity which stresses their psychologic defenses respond with the general symptomatology of the anxiety state. The significant differentiation between the individual with an anxiety neurosis and the gross stress reaction is the absence of predisposition to respond to the particular stress based upon prolonged and determining past interpersonal influences which lead to an overdetermined reaction to the perception of the particular threatening situation. It is not to say that such a predisposition may not and does not exist in many who respond with the symptoms of a "stress reaction." Rather it implies that any individual may respond with personality disorganization in the face of a sufficiently gross stress as a consequence of a sufficiently severe and prolonged threat. Thus, such breakdowns are conceivable for all and may surmount, precipitate, and complicate an existing psychoneurotic or psychotic disorder. The symptomatology of the gross stress reaction may persist for a prolonged period after the occurrence of the threat and the symptoms, apparently in abeyance, are aroused by any situations which recapitulate in his mind the original danger, whether this be a reduplication of the occurrence, a phantasy, or a trend of associations induced in his thought processes or a dream. Between acute anxiety attacks and when not exposed to threatening circumstances, the person appears to function in a healthy manner. In the majority of those who are without neuroses or psychoses, the condition is self-limiting and with withdrawal from the threatening situation the reactions disappear in time. In some, however, the traumatic threat, surmounting a basically neurotic personality structure, leads to a severe, persistent, and disabling neurosis that chronically interferes with adaptation to life. In addition to the general apprehensiveness, the individual often appears restless and tense. On questioning, he will advise that his sleep was broken by nightmares recapitulating the threatening event. In the case of those instances of combat neuroses where the individual was exposed to heavy shell fire, a startle response on exposure to sharp noises is invariably present. Automobile accidents probably represent the commonest form of threatening incident in modern American life. The recognition of the gross stress reaction as a consequence of these accidents is possibly the most overlooked clinical phenomenon of American medical practice. The emo-

tions of fear and anxiety, sometimes with anger and shame, are aroused in the aftermath of threatening incidents. One is confronted usually with a problem more complex than simple threat to life with all catastrophic events.

THE ACUTE ANXIETY ATTACK

Such attacks are cardinal features of the anxiety neuroses and occur as an expression of gross stress reaction. The symptoms of the attack usually are due to hyperventilation.[5,7,15,22] With the ensuing alkalosis which follows overbreathing, the symptoms evolve in a particular order. Initially noticed are lightheadedness and giddiness, followed by unsteadiness and incoordination, palpitation with smothering sensations expressed as attacks of breathlessness, air hunger, or pressure sensation in the thorax, tingling, paresthesias about the fingers, toes, or perioral region, and finally overt loss of emotional control with crying, impaired judgment, or even disturbed consciousness and convulsions. Signs of central nervous system disturbance such as the paresthesias, tetany, and disturbance of consciousness and affectivity are not the cardinal or initial phenomena but occur only after fairly prolonged and intensive overbreathing. The majority of sufferers of repeated attacks may complain only of dizziness, unsteadiness, palpitation, or air hunger. The latter symptom is most important as the victim usually increases the rate and depth of his breathing and thus aggravates his condition when he feels short of breath.

Other symptoms which have been less emphasized are headache, anorexia and nausea, abdominal pain or discomfort, choking or dysphagia, and belching or gas. Indeed, McKell and Sullivan[17] found 5.8 per cent of patients in a gastroenterology clinic to be suffering such attacks. Air swallowing is common. Distention of the viscus is the probable cause of these symptoms, although McKell and Sullivan suggested that intestinal spasm followed the hyperventilatory alkalosis.

In the vernacular of the clinic, the patient may speak of his dizziness as "I feel as if I'm going to faint." Headache is usually frontal. Some state that "The top of my head is coming off," or "It's all over my head." The breathlessness of air hunger is referred to by most patients in such phrases as, "I feel I can't breathe right," or "I can't get air," or "I'm suffocating due to lack of air." Chest pain may be described as soreness, pains under the breasts, or heavy feelings.

The attack is customarily accompanied by the dread of impending death, the patient frequently reporting that he felt he was about to die. Such attacks take place during the day either in social situations or when alone. Also they occur quite frequently at night, the sufferer awakening suddenly from sleep. In most instances it will be found that preceding the attack there has been a frightening dream.

Overbreathing leads to a train of changes in physiologic functioning that determines all but the initial anxiety which precipitated the increase in respiratory rate. There occurs a decreased alveolar air and arterial carbon dioxide tension and fall in blood bicarbonate content. Initially there is then a respira-

VOL. 9 195

tory alkalosis. If overbreathing continues for several hours the blood pH is restored to normal by reduction in plasma sodium or increase in plasma chloride or both. As a consequence of the alkalosis the acid base equilibrium is modified, circulatory changes take place, and the activity of the neuromuscular system is changed. With perpetuation of the state the volume and composition of the urine are changed.

The circulatory changes consist of vasoconstriction of the blood vessels of the skin and brain. Hypotension, cardiac arrhythmias, and changes in the EEG take place with T-wave inversions. Presumably the latter is due to a vagal reflex arising in the thorax.

Engel[7] relates the symptoms referable to abnormal functioning of the central nervous system to those consequent to reduction in consciousness and those secondary to the tetany. He found a close correlation between the degree of reduction of consciousness and the degree of slowing of the electroencephalogram. In his tests, levels of consciousness were examined by asking the hyperventilating subject to recall three objects and to do a multiplication problem in the last 30 seconds of a 3-minute period of overbreathing. The responses given after the tests were graded. Symptoms due to changes in the level of consciousness are those of increased anxiety, panic, weeping, and various hysteroid reactions as well as sensations of floating or unreality and actual convulsions. The blurring of vision is also due to direct effects of anoxia on the retina. The remainder of the symptoms are consequent to impending tetany and are usually seen earlier in the attack.

In exposing healthy persons to hyperventilation, it was noted that in general the more marked the effect on level of consciousness the less were the numbness and tingling and the possibility of tetany. Furthermore, if slowing of the EEG and loss of consciousness did not take place within 3 minutes of vigorous overbreathing the more likely was tetany to appear.

These individual differences, observed in testing healthy young men, are duplicated in the neurotic patient with acute anxiety attacks where we see one or another set of symptoms emphasized. Engel was able to show that when the arterial CO_2 content fell rapidly, when there was concomitant low blood pressure sugar, low oxygen tension in the inspired air, or the individuals were in the erect posture, slowing of EEG was more frequent. It may be suspected that, in patients exposed to particular environmental conditions (e.g. heat) or suffering from illness leading to similar changes, the symptoms related to reduction in consciousness would be most conspicuous.[15,17,18,22]

Other defects in cerebral functioning consequent to hyperventilation are a reduction in hearing, reduction in visual intensity and discrimination, lengthening of negative afterimages, and a shift from ordinary word association with deteriorated performance on psychomotor tests.

In the majority of instances the acute anxiety attack is self-limiting. While initially the increasing anxiety of the patient, which results from his symptoms, tends to accentuate his struggle to inspire, the attack terminates with impairment of consciousness. In one outpatient department it was found that as many as 10 per cent of all admissions suffered from an unrecognized hyperventilation

syndrome probably in connection with an anxiety state. In my experience this is the usual source of the physical symptomatology of the individual with an anxiety reaction. It may be mentioned, however, that there is not general agreement that hyperventilation is the sole cause of the acute anxiety attack. Whether such attacks may be induced by other autonomic and humoral activity is not determined. We know that infusions of adrenalin and noradrenalin do not precisely reduplicate the subjective symptomatology suffered by the individual with acute anxiety as demonstrated by the studies of Basowitz and associates[3] and Holland and colleagues.[14] While the attack of hyperventilation probably represents the usual physiologic expression of the acute anxiety attack, it does not suffice to explain the chronic apprehensiveness found in the enduring anxiety state.

PHYSIOLOGY OF ANXIETY

As defined earlier, anxiety is specifically a human response which results from the long period of dependency of the growing child, the processes of communication between himself and others, the learning of environmental cues which threaten him with the emotions of shame and guilt, and consequent separation from those on whom he is dependent. Anxiety in this sense must be differentiated from the conditions studied in animals wherein the possibilities for learning of symbols by means of cues derived through language communicative systems does not exist or where the responses of shame and guilt peculiar to human society are known to occur.

Nevertheless, anxiety may be recognized as a socially differentiated bodily response to a threat to the individual and in this sense is related to fear or the tension consequent to failure to satisfy a basic bodily need. Today the term stress is used generally to designate stimulus conditions that threaten the fulfillment of his basic needs. For modern man the demands of society are basic. Psychologic stress may be detected in those conditions which lead to a state of tension. These highly individualized stresses, consequent to the determining effects of past threatening experience, are recorded within the nervous system and recalled consciously in memory or expressed unconsciously by repetitive behavior patterns (neurotic). The fact that the stress of physical exertion produces end organ activity very similar to that of the psychologic stress is nicely illustrated by the studies of Renold and his associates.[21] They found that pituitary-adrenal function as measured by eosinopenia was as great in coach and coxswain on race day as that of crew members. Yet on days of training little eosinopenia was noted in the coach or coxswain. The determination of a psychologic stress is dependent then upon a particular organization of the central nervous system which perceives a threat to the individual, records anxiety as a signal of this threat, and puts in motion a series of psychologic and somatic mechanisms to defend against the threat. As an analogy it is possible to study the responses of various organ systems in animals exposed to stress situations which are threatening. Perhaps the most pertinent are those stress-inducing situations set up in the course of conditioning experiments.

VOL 9 195

It should be mentioned that the subjective state of anxiety and its related physiologic concomitants may endure after termination of the period of psychologic stress and in some instances appears delayed. (The development of anxiety states in soldiers after return to the United States rather than immediately subsequent to battle is an example).

At any rate, the central neurophysiologic processes underlying anxiety are sought now in the studies on the midbrain reticular formation and the diffuse thalamic-reticular projections with their capacity for alerting the organism and probably providing the emotional tone related to incoming sensory impressions and thus determining their ultimate perception and the memory of the signal. The recent studies of the hypothalamus and rhinencephalon also suggest their activity in the integration of emotional and visceral activity and thus the secondary somatic manifestations of anxiety.

VOL.
9
1959

The subsystems activating organ structures which are accepted presently as most significant in expressions of the peripheral manifestations of anxiety are the autonomic nervous system, with its outflow to various viscera including the adrenal medulla, and the pituitary-adrenal complex with its capacity for hormonal and metabolic regulation. Earlier, it has been pointed out that the physiologic accompaniment of the acute anxiety attack is the disturbance in respiration with the accompanying effects on consciousness and neuromuscular irritability consequent to a respiratory alkalosis.

Studies have failed to show any significant change in levels of adrenalin or noradrenalin in the blood stream in human states of anxiety although it has been frequently inferred that such occur. Only recently a technically satisfactory quantitative test that yields consistent results with these substances has been developed. The reviews of Altschule,[1] Basowitz and associates,[3] and Grinker,[12] and the papers by Basowitz and his colleagues[4] and Holland and associates[14] are relevant to the studies on anxiety which pertain to the functioning of this subsystem. If this adrenal medullary subsystem is activated, the study of Holland provides worthwhile information on the wide variability of response in different individuals when exposed to adrenalin and noradrenalin in excessive quantities. Particularly significant is the occurrence of localized areas of pain and tenderness peculiar to each individual.

It is known now that the phenothiazines and reserpine profoundly affect the electrical activity of the reticular activating system, the rhinencephalon, and their peripheral effectors. Furthermore, reserpine has been shown to bring about an emptying of the stores of serotonin, adrenalin, and noradrenalin wherever they occur in the body. Yet the method of action of reserpine and these chemoreceptors remains obscure. In these new findings are clues to the understanding of the clinically empiric data of reduction of the enduring signs of chronic anxiety. The details and conflicting hypotheses of these findings are well documented in a recent article by Himwich.[13]

PROGNOSIS

There are relatively few reports available on the course of the anxiety neurosis or neurocirculatory asthenia. Wheeler and his associates[24] presented a

20-year follow-up study of 173 patients with this condition who were seen in a medical practice and received no other treatment than reassurance and varying medical therapies. Of the 60 patients who were actually examined at the end of 20 years, 11.7 per cent were well. Four had had only one episode of anxiety, lasting a few months to 3 years. The other three had two or three acute episodes. The symptoms of the original illness had persisted in 80.3 per cent, except for one patient. Such patients were never free of symptoms for prolonged periods, although the number, frequency, and severity of symptoms were variable from time to time. Although symptomatic, 73 per cent had either no disability or a mild disability estimated against their capacity for work, housekeeping, or social life. On the other hand, 15 per cent had been or were symptomatic and suffered a moderate-to-severe disability. In the group of patients followed only by a questionnaire on their state of health, 11 per cent had consulted a psychiatrist. Of this group 45.5 per cent were in good health, 27.3 per cent were in fair health, and 27.3 in poor health. Responses of those patients who had seen a psychiatrist were essentially similar to the group of patients who had been treated under a medical regimen. The questionnaire used by Wheeler and his group was not of such a type as to reveal the subtle differences in social functioning pertinent to comparing the effectiveness of treatment by one or the other method. The aims of psychiatric and psychoanalytic treatment are often directed to bringing about a personality change that will lead to more effective interpersonal relations as well as symptomatic relief. Such aims are more ambitious and difficult to attain than the limited effort of symptomatic relief which often is gained only through restriction of personality functioning. Only an interview technique or a more carefully constructed questionnaire that is capable of surveying the problem of functioning in relation to other persons at home, vocationally, or socially could provide an estimate of this type of therapeutic gain and allow a comparative evaluation of the various treatment techniques.

The existence of other physical diseases was studied also in patients with this illness. Anxiety neurosis was neither protective nor productive of specific types of physical illness over long periods of time. In regard to mortality, fewer of the patients in this series died than might have been expected to do so from calculations based on the mortality rate of the general population.

DIAGNOSIS

In the future management of a patient with an anxiety reaction, the physician must decide whether the condition has resulted from an existing danger or is consequent to a severe and transient but recent threatening situation not ordinarily present in the patient's life or a chronic psychoneurotic reaction associated with the characteristic personality structure described previously. A diagnosis of the condition may be made only from a comprehensive history-taking and an assay of the patterns of personality reaction initiated by the life experiences of the individual extending from childhood to the current situation. In practice the physician usually is confronted either with a patient who has recently had an acute anxiety attack or one who comes to him with the complaint

of persisting tension over long periods of time. In the first instance, much valuable information may be obtained by attending particularly in the history-taking to the account of the present illness and the social setting in which the acute anxiety attack occurs. Once the patient has provided a good description of his symptomatology, a detailed account should be obtained of the setting in which the symptoms arose. Frequently the anxiety attack has taken place at a time when the patient was in a social gathering with other persons. On other occasions he may have been alone or even awakened at night from sleep in such an attack. In the first instance, a careful accounting of the people with whom he was associating and the nature of the conversation between them will often allow significant inferences of the conflict which has led to the onset of anxiety and the emotion that has been signaled by the anxiety. If the patient recounts that his attack took place when he was alone, an effort should be made to have him recall his train of thought just prior to the onset of the attack. Finally, in the case of the patient who was awakened with an attack in the middle of the night, it is often possible to obtain a history of a dream which has led to the arousal of anxiety. If the patient has a chronic neurosis he will advise of the occurrence of many acute anxiety attacks in the past. Under such circumstances it is not uncommon to find that the patient can give a clear description of the initial attack and the social setting in which it occurred, as well as certain other later attacks. From such accounts a skilled interviewer may derive a repetitive pattern of social interaction that leads to the arousal of anxiety. The operational definition of anxiety, given earlier in this chapter, is of great help in attempting to define the persons important to the patient, both currently and in the past, and the state of his present relationship with them and the means by which he relates himself to them.

Following the study of the situations in which the acute attacks are produced, a careful history must be obtained of the family life and personal development in which are included an account of the patient's adaptation, socially, sexually, and vocationally at the various periods in his development. The diagnosis of psychoneurosis will be made on positive evidence of the characteristic personality in association with the existence of chronic anxiety, the episodic acute anxiety attack, and phobic phenomena.

The patient with an anxiety neurosis and acute anxiety attacks is often incorrectly considered to have such cardiac disorders as angina pectoris, coronary disease or insufficiency, neurocirculatory asthenia, asthma, or other pulmonary diseases, and occasionally spinal cord disorders, depending upon the particular symptoms he emphasizes in presenting himself. Some have been incorrectly diagnosed as suffering from pheochromocytomas, spontaneous hypoglycemia, or tumors of the pancreas.

The hyperventilation syndrome due to anxiety must be differentiated from hyperventilation occurring as the result of encephalitis, tumors of the brain stem, or excessive heating, high-altitude anoxia, or in such toxic states as poisoning with salicylic acid. In such conditions the respiratory disturbance is usually persistent over periods of time and associated with other evidence of illness.

TREATMENT

Frequently the physician is called upon to see the patient at the time of an acute anxiety attack. Such attacks may best be treated by reassurance, a prescription of some sedation, either by mouth or parenterally, and, if it is evident that the patient is a hyperventilator, advice as to control of this condition. If the patient is reassured and allowed to rest quietly in a recumbent position, separated from his friends and relatives, the acute attack rapidly subsides. This approach may be taken after the attending physician has undertaken the initial diagnostic medical examination.

There are now a wide variety of pharmacologic agents available which may be prescribed as immediate measures to relieve the patient of the physical expressions of anxiety. The phenothiazines particularly have value in relieving persistent expressions of overactivity of the autonomic nervous system. Meprobamate is useful, particularly for providing relief of muscular tension with chronic anxiety. A full description of the indications and contraindications as well as the toxic effects of these drugs is provided in the symposium article by Dr. S. Malitz.

VOL. 9 1959

It must be recognized that the use of the sedatives and the pharmacologic agents allows only a degree of symptomatic relief for the basic personality problem underlying the chronic anxiety neurosis. Psychotherapy still remains the most effective agent in the treatment of the condition. Here the attending physician must decide the aim of the therapy which he wishes to recommend. On the one hand he may conclude that treatment is to be directed only to the alleviation of the anxiety state as a manifestation of a severe or acute stress with the patient eventually adapting again at a level which existed prior to the onset of his illness. Here supportive treatment through the medium of regular visits, the use of pharmacologic agents, and the passage of time will be the medium of choice. Psychiatry will be directive and concerned with current issues. On the other hand, if one is confronted with a chronic anxiety state in the young patient with a neurotic personality structure, the decision should be for definite psychotherapy, so that there may occur relief of symptoms and also a more effective set of attitudes which will make it possible for him to confront his family and vocational responsibilities in a creative and effective manner. In the former instance, the physician may decide to assume the responsibility for treatment himself, or refer the patient to a psychiatrist. In the latter instance, it is usually the recommendation that the patient be referred to a psychoanalyst or a psychiatrist who is capable of conducting a dynamic form of psychotherapy.

Attempts to relieve symptoms alone or to treat an acute anxiety reaction dependent upon severe but transient stress in an individual who has otherwise had a reasonably healthy development fall within the range of the responsibility of the practicing physician. With the existence of a chronic anxiety state with associated phobias that interfere with the individual's social and vocational life and his capacity to rear a family, referral should be made to the specialist. It is particularly important to make such a recommendation with patients who are or expect to be parents. Studies have shown that a very high proportion of

children reared in families with anxiety states tend to develop similar psychopathology.

REFERENCES

1. Altschule, M. D.: Medical Progress: Physiologic Psychology of Neurosis, New England J. Med. **251**:476, 1954.
2. Badal, D. W.: Psychiatric Observations in Neurocirculatory Asthenia, J.A.M.A. **154**:1054, 1954.
3. Basowitz, H., Persky, H., Korchin, S. J., and Grinker, R. R.: Anxiety and Stress, New York, 1955, The Blakiston Division, McGraw-Hill Book Co., Inc.
4. Basowitz, H., Korchin, S. J., Oken, D., Goldstein, M. J., and Grussack, H.: Anxiety and Performance Changes With a Minimal Dose of Epinephrine, A.M.A. Arch. Neurol. & Psychiat. **76**:98, 1956.
5. Brown, E. B.: Physiological Effects of Hyperventilation, Physiol. Rev. **33**:445, 1953.
6. Cohen, M. E., and White, P. D.: Life Situations, Emotions and Neurocirculatory Asthenia (Anxiety Neurosis, Neuroasthenia, Effort Syndrome), Psychosom. Med. **13**:335, 1951.
7. Engel, G. L., Ferris, E. B., and Logan, M.: Hyperventilation: Analysis of Clinical Symptomatology, Ann. Int. Med. **27**:683, 1947.
8. Freud, A.: The Ego and Mechanisms of Defense, New York, 1946, International Universities Press.
9. Freud, S. (1894): The Justification for Detaching From Neurasthenia a Particular Syndrome: The Anxiety-Neurosis. Collected Papers, Vol. I. London, 1924, Hogarth Press, pp. 76-106.
10. Freud, S. (1895): A reply to Criticisms on the Anxiety-Neurosis. Collected Papers, Vol. I, London, 1924, Hogarth Press, pp. 107-127.
11. Freud, S. (1926): Inhibitions, Symptoms and Anxiety, London, 1936, Hogarth Press.
12. Grinker, R., Korchin, S. J., Basowitz, H., Hamburg, D. A., Sabshin, M., Persky, H., Chevalier, J. A., and Board, F. A.: A Theoretical and Experimental Approach to Problems of Anxiety, A.M.A. Arch. Neurol. & Psychiat. **76**:420, 1956.
13. Himwich, H. E.: Psychopharmacologic Drugs, Science **127**:59, 1958.
14. Holland, B., Cohen, G., Goldenberg, M., and Lefer, L.: A Study of Somatic Symptoms Produced by the Infusion of Adrenalin and Nor-adrenalin in Normal Subjects. In press.
15. Lewis, B. I.: Chronic Hyperventilation Syndrome, J.A.M.A. **155**:1204, 1954.
16. May, R.: The Meaning of Anxiety, New York, 1950, Ronald Press.
17. McKell, T. E., and Sullivan, A. J.: Hyperventilation Syndrome in Gastro-enterology, Gastroenterology **9**:6, 1947.
18. Musser, M. J., and Derus, G. J.: Hyperventilation and Pseudohypoglycemic Reactions in Diabetes Mellitus, J.A.M.A. **152**:1113, 1953.
19. Persky, H.: Adrenal Cortical Function in Anxious Human Subjects; Effect of Corticotropin (ACTH) on Plasma Hydrocortisone Level and Urinary Hydroxycorticoid Excretion, A.M.A. Arch. Neurol. & Psychiat. **78**:95, 1957.
20. Persky, H., Grinker, R., Hamburg, D. A., Sabshin, M. A., Korchin, S. J., Basowitz, H., and Chevalier, J. A.: Adrenal Cortical Function in Anxious Human Subjects, A.M.A. Arch. Neurol. & Psychiat. **76**:549, 1956.
21. Renold, A. E., Quigley, T. B., Kennard, H. E., and Thorn, G. W.: Reaction of Adrenal Cortex to Physical and Emotional Stress in College Oarsmen, New England J. Med. **244**:754, 1951.
22. Sattler, T. H., Marquardt, G. H., and Cummins, G. M., Jr.: Alkalosis Due to Hyperventilation, J.A.M.A. **146**:1125, 1951.
23. Sullivan, H. S.: The Interpersonal Theory of Psychiatry, New York, 1953, W. W. Norton and Company Inc., p. 113.
24. Wheeler, E. O., White, P. D., Reed, E. W., and Cohen, M. E.: Neurocirculatory Asthenia (Anxiety Neurosis, Effort Syndrome, Neurasthenia), J.A.M.A. **142**:878, 1950.
25. Zetzel, E. R.: The Concept of Anxiety in Relation to the Development of Psychoanalysis, J. Am. Psychoanal. Assoc. **3**:369, 1955.

PSYCHONEUROSES AND THEIR MANAGEMENT IN GENERAL PRACTICE

C. KNIGHT ALDRICH, M.D.,
CHICAGO, ILL.

From the Department of Psychiatry, University of Chicago

(Received for publication Dec. 1, 1958)

VOL.
9
1959

INTRODUCTION

PSYCHONEUROSIS is a term customarily used to describe most of the disorders seen in general practice which are caused primarily by disturbed emotions and which do not require hospital care. Most observers agree that disorders of this type make up a significant share of the general physician's practice: significant in their frequency, their persistence, and often in the frustration associated with their treatment. The general physician plays a pivotal role in treatment, since he usually sees the patient early in the course of the psychoneurosis and since his technique of referral to a psychiatrist has been shown to be crucial to the ultimate success of treatment. Furthermore, by injudiciously arousing a patient's anxiety or by unduly focusing on a patient's physical complaints, he can convert an incipient, readily treatable reaction into a chronic, fixed neurosis that defies all therapeutic efforts.

Although psychoneuroses tend to follow a chronic course, there is a great deal of variation in the degree of their chronicity. At one extreme is the acute attack of overt or concealed anxiety precipitated by an unusual or overwhelming situation in an individual who is emotionally well integrated under ordinary circumstances. Combat exhaustion is an example; another is the hysterical episode occasionally encountered in an otherwise stable bride-to-be. Such an attack may be self-limited, or it may respond to relatively uncomplicated modifications in the patient's environment. Somewhere in the middle is the exacerbation of a chronic but slumbering psychoneurosis. At the opposite end is the chronic disabling psychoneurosis in which symptoms are present at all times.

HISTORY-TAKING

In order to arrive at rational management, the physician should determine the approximate location of his psychoneurotic patient on the continuum of chronicity. Careful history-taking is necessary, as the apparently isolated anxiety attack often is found to be in reality a variation or exacerbation of a chronic psychoneurosis.

> For example, I recently talked with Mrs. C., an attractive 25-year-old housewife. She complained that at some time during every night in the previous week she had awakened terrified and unable to swallow. The attacks began shortly after the death of

her pet dog from distemper, and the thought had occurred to her during her first attack that perhaps he really had had rabies and had passed it on to her. She could not put the idea out of her mind in spite of her physician's reassurance that she did not have rabies, and, since she continued to have the nocturnal attacks with increasing severity, she decided to see a psychiatrist.

Since she was very attached to the dog, it would have been tempting to conclude that she was suffering from no more than a situational reaction. However, the extent of her reaction and the preoccupation with rabies made me suspect that more was involved, so I began to look for other signs of trouble.

In my search, I carefully avoided a blunt or direct approach. If I had posed leading questions such as, "Have you been nervous before?" "Do you have other emotional problems?" or "Are you having any trouble with your husband or mother?" I believe she would have answered in the negative. Questions posed in this fashion mobilize the patient's defensiveness, so that he will answer in a way more inclined to protect his self-esteem than to give information.

Indirect and somewhat vague questions through which the patient is encouraged to talk freely without giving "yes" or "no" answers are usually much more productive of useful historical material. Therefore, my next question was phrased in approximately this fashion: "Could you tell me something about how you had been feeling before these attacks began?"

The patient stated that 3 or 4 months earlier she had suffered from dyspepsia and diarrhea. She went to her family physician who examined her, told her he could find nothing wrong with her, said she was probably nervous, and prescribed medication. When I asked what she did next, she said, "I went to another doctor." After the second physician put her through a number of tests and came out with the same answer, she stopped going to him. When I asked what she really thought had been wrong, she said, "The recession had hit my husband's business pretty hard and I was worried about money."

Note that although she had stopped going to the two physicians who had told her she was nervous, she still ascribed the cause of her symptoms to worry. Later she explained this apparent paradox by saying, "They were more interested in what I didn't have than what I did have. One of them didn't ask me about my worries until all the tests were done and he couldn't find anything else; the other didn't seem to want to hear about them at all."

Worries about money are relatively common and certainly contribute to the development of symptoms. However, since many people suffer from financial worries without developing symptoms, I wanted to ascertain the specific meaning that money had for this particular patient. Since she had now opened the discussion of her worries, I could be somewhat more direct in my questioning. I therefore asked her, "Do you ordinarily get upset easily about money?"

The patient said she had been conscious of financial problems as far back as she could recall and discussed her father's failure to provide for the family, his desertion when she was 12, her mother's struggle to support the family, and the patient's consistent anxiety as a little girl over her mother's difficulty in managing money. When I showed interest in her background, she felt encouraged to reminisce more extensively and to tell me of her resentment toward her father. When I asked her whether there were

things other than money that particularly troubled her, she mentioned that she was much more concerned with cleanliness than was her husband and that this was the source of differences of opinion between them. This in turn led to a discussion of the basis for her marriage 6 months previously. Earlier she had been engaged two or three times to relatively well-to-do men but had backed out of each match at the last moment. She finally married a relatively indigent and somewhat passive man whose cultural status she belittled but whose poverty made it possible for them to justify living with her mother.

Thus, as one facet of her life led to another, I began to get a picture of her history and of the dynamics of her illness. I also learned of a few other symptoms, such as a fear of railroad trains which had resulted in severe limitation of their social life. By this time it was evident that her anxiety attacks were not isolated incidents related solely to the death of the dog but were exacerbations of long-standing although as yet not seriously incapacitating emotional illness.

VOL. 9 195

DIAGNOSIS

The exploration of a patient's emotional life is not the exclusive domain of the psychiatrist. Any physician should be able to take the preliminary diagnostic steps somewhat as outlined previously. The diagnosis never should be made simply by exclusion of organic diseases; a diagnosis made by such a method may reassure the physician but seldom reassures the patient. Diagnosis should be made *primarily* by the positive signs of emotional illness, *secondarily* supported, of course, by the appropriate evaluation of any coexisting organic factors.

A positive diagnosis is made by a careful study of three areas: (1) symptoms, (2) precipitating factors, and (3) the patient's personality and conflicts.

Symptoms.—When the symptoms are solely in the mental sphere, such as phobias, compulsions, obsessions, delusions, or depressions, the diagnosis is not complicated. Thus, Mrs. C.'s fear of locomotives is probably due to emotional illness, although the remote possibility of an organic brain component should be kept in mind. When the symptoms are manifestations of a physical disorder, they represent a more difficult problem. Autonomic disturbances, such as Mrs. C.'s diarrhea and dyspepsia, may be manifestations of chronic repression of hostility or of other emotional states. Diarrhea and dyspepsia also may arise from other causes and combinations of causes, and a careful evaluation of their specific attributes, course, and other characteristics is necessary. Symptoms due to the mechanism of *conversion* result in signs apparently attributable to disturbance of the voluntary nervous system or organs of special sense but usually are not consistent with patterns of organic disease. Symptoms due to the mechanism of *displacement* are usually manifest by the patient's preoccupation with one or another part of the body without definite physical signs.

Further understanding of the symptoms comes from the way in which the patient describes them and reacts to them, the patient's idea of causation (e.g., Mrs. C.'s belief that her dysphagia was due to rabies), the timing of the symptoms, and the means of relief. The physician should not be misled by a patient's insistence that there is no relation between emotional tension and symptoms. Patients frequently prefer to accept an organic explanation for their discomfort rather than face the psychologic problems which really are present.

Precipitating Factors.—To make a positive diagnosis of an acute emotional illness, the onset of symptoms should be related to events of specific emotional significance. As we have seen, Mrs. C.'s fear of rabies was related to the death of her dog, whose specific emotional significance may have been in part related to his position as a male animal over whom she exerted complete control. Further exploration, however, showed that the dog's death coincided with the patient's first vacation with her husband away from her mother. As the total picture unfolded, the separation from the mother seemed to be more significant than the loss of the dog.

The diarrhea and dyspepsia were associated by the patient with financial problems; perhaps as important was the fact that the financial problems had led the patient's husband to attempt, laboriously but unsuccessfully, to repair his outworn automobile. His resulting greasy hands and clothes annoyed the patient, and his ineffectiveness stimulated her underlying contempt for men in general and her husband in particular. Although she repressed both the annoyance and the contempt, she could not avoid the gastrointestinal accompaniments of the anxiety that resulted from their mobilization.

Basic Personality.—The history gives clues to Mrs. C.'s basic personality characteristics: for example, the husband's greasy hands would not have disturbed a less compulsive individual; his ineffectiveness in an unaccustomed role would not have been so distressing if she had not tended from childhood to depreciate men, and the vacation might have been welcomed by someone less closely attached to her mother.

The physician does not need to be reticent about asking a patient to describe himself and his usual modes of reaction. Interpersonal relationships, particularly involving dependency, hostility, and sexuality, are the usual sources of tension. Thus, when the patient described her irritation at her husband's greasy hands and clothes, I asked, "How do you customarily deal with feelings of irritation like that?" and the patient told of her inability to come to grips directly with anyone who caused her annoyance. I do not recommend the overt expression of hostility in such a case; instead, I try to help the patient consider other possibilities besides repression or direct expression. I do not advise alternative courses; rather, I explore the reasons why other courses have not been considered or carried out. Thus, Mrs. C. and I tried to figure out what kept her from discussing problems with her husband and possibly working out compromise solutions, such as leaving his dirty overalls in the garage. When I also asked her how she had learned to keep her annoyances to herself so carefully, I found out more of her background, of her dependency on her mother, and of her fear of her mother's disapproval. The diagnosis was established from consideration of her symptoms, her basic personality, and the precipitating factors.

There is no doubt that an occasional patient, although fulfilling all of the criteria for the diagnosis of a neurosis, still suffers from organic disease, either contributory or incidental. It is therefore extremely important that the physician institute a thorough exploration of all possibilities of organic illness. However, the average psychoneurotic patient in the long run is helped to pursue appropriate treatment to a greater extent if the tentative diagnosis of emotionally

conditioned illness is discussed before laboratory evaluation is undertaken. If, after the history and physical examination had been completed, I was reasonably sure that Mrs. C. was suffering from an emotional disorder but wanted to be absolutely sure that she did not have mild iron-deficiency anemia as well, I would tell her so. If I do so, and her blood studies are negative, she will have confidence that I understand her illness. If she does have an anemia, I will explain how the anemia contributes to her symptoms, but that it is not their sole cause. In this way, I hope she will see psychotherapy as her primary treatment concern, and the prescription for iron as an adjunctive measure rather than the major therapeutic agent.

TREATMENT

The tentative diagnosis should lead directly to one of three decisions: (1) to undertake immediate symptomatic treatment, by such methods as medication and relatively superficial reassurance, (2) to settle down to a course of supportive psychotherapeutic interviews, or (3) to refer the patient to a psychiatrist, either for further diagnostic evaluation or for treatment. I believe that the second alternative is often avoided by the physician when it is indicated, and I suspect there are several reasons for his disinclination to undertake supportive psychotherapy.

Psychotherapy of any type consists of so many intangibles that it is very difficult to describe and impossible to structure in neat, specific steps. Furthermore, psychotherapy is opposite in so many ways to the physician's usual type of treatment that he tends to feel uncomfortable and to underestimate his contribution. The physician's usual personal role in treatment consists of a rather authoritative prescription of definitive procedures: "Take one of these pills after each meal; take this capsule at night before going to bed; follow this diet; in going upstairs, stop after each fourth step and count ten." If he carries this role into the treatment of psychoneurosis, however, he will prescribe too much medication and give too much advice. Since the major part of his training is in the area of organic illness, he tends to seek out and concentrate on the patient's description of his physical symptoms. The patient fosters this emphasis, unconsciously preferring to be treated for an organic illness so that he can avoid facing the distressing conflicts which cause the emotional illness. Mrs. C. would like to settle for a prescription, but, unless I am convinced that her illness is an acute self-limited episode precipitated by a specific and nonrecurring stressful situation, if I temporize today I make her treatment more difficult in the long run. What she needs is the opportunity to discuss with an empathic but objective observer the disturbing aspects of her relationships with her husband and mother.

Discussion of these relationships is facilitated if the interviews are regular in duration and frequency. In general practice, 20 minutes to half an hour once a week is often all that the physician can afford, but if he maintains this schedule with consistent regularity, he may accomplish a great deal. By his attitude and evidence of interest he can help the patient express her feelings and,

VOL. 9 195

once they are out in the open, he can help her to discover more realistic methods of dealing with them. The physician does not have to probe; he does not have to have answers to insoluble problems; and he must expect to hear the same problem discussed over and over again. He works with his own personality by means of the relationship between his patient and himself. The family physician usually has an advantage in supportive psychotherapy because he already has his patient's confidence, and rapport is easily established. Treatment then becomes a collaborative project in which patient and physician work together to help the patient speak freely about his feelings, to identify the important areas of conflict as he talks about his feelings, and to explore feelings held over from earlier conflicts in the light of current reality. As this process is repeated, the patient usually begins to react more realistically to current situations.

OL.
9
959

As an example, a 35-year-old mother of a boy and girl was seeing a physician (not a psychiatrist) at weekly intervals for physical symptoms caused by anxiety. I will not discuss all the details of the case but will concentrate on one facet.

At first the patient emphasized her devotion to her widowed mother, who lived with the family. Her protestations were so emphatic, and so inconsistent with the history of the patient's relationship to her mother, that the physician suspected they served as a protective device to keep the patient from recognizing her anger.

If the protection had been successful—if the patient could have convinced herself, without bringing on symptoms, that all her filial feelings were affectionate—the physician would have let well enough alone and avoided stirring up her ambivalence (mixed feelings). However, since her symptoms continued, he encouraged her to talk about her mother and their past and present relationships. He did not take issue with her, nor did he agree with her; for the most part he simply listened, although occasionally when her protestations became exaggerated, he indicated a gentle skepticism, perhaps by raising an eyebrow or by repeating her statement with a rising inflection.

After several sessions she felt secure enough with him to let some of her angry feelings come to the surface. She really had not known they existed, and when they appeared, she felt ashamed. He did not tell her she should not feel ashamed, but by his accepting demeanor he let her see that he understood both the anger and the shame.

At first the shame was more evident than the anger. She cried a good deal, and vigorously berated herself. Her physical symptoms were more severe, and she appeared depressed. But as time went on and the physician encouraged her to discuss the patterns on which were based her critical standards for herself, she gradually became less ashamed and more angry. Although her physical symptoms improved, her family life became upset; she was unreasonably touchy and resentful toward her mother, and her resentment spilled out onto other members of the family.

At this point the physician wondered if his treatment efforts had not made things worse instead of better. I encouraged him, pointing out that psychotherapy was similar to a surgical procedure, in that the patient became temporarily worse on his way to improvement and that, although progress had been made, the incision was still open. If they stopped at this point, the patient might lose the benefit of their previous efforts.

Commenting that he had never known of an operation that required so much time, he returned to his patient. She continued to berate her mother and brought up an incident in which she overheard her mother criticizing one of her grandchildren. The physician thought that the incident, as described, indicated that the mother might have been somewhat arbitrary, but not to an extent which justified the patient's vehement castigation. He said: "Un-hunh, I see. It made you very angry. But do you suppose it is possible that you might have been over-reacting to this situation? Do you think you might have been less upset by this if it hadn't reminded you of similar situations in the past which you still resent?"

Although the physician had made his interpretation in the form of a tentative question, not telling the patient but asking her, she still reacted at first as if he had taken sides against her. The physician did not get into an argument with her about this, but firmly encouraged her again to explore the situation. As she simmered down, she could recognize that she had been carrying a chip on her shoulder and that she had stirred up a good deal of tension in her home. She then asked what she could do about it. Although the physician said he could not give her a direct answer, he suggested that together they could work out ways of dealing with her anger which would spare both herself and others. Actually, as the patient realized that the physician had confidence in her eventual ability to deal realistically with her feelings, she became less frightened of them, and she began to channel them into verbal expression in the interview situation. She began to see her mother in a more realistic perspective, and, as she found she could set limits to her mother's domineering and could recognize some of her mother's helpfulness and other assets, she became more relaxed at home and decided that she no longer required regular interviews. She now knows she can come in to talk with her physician if she needs to, but she has gained confidence from his confidence that she can handle realistically most of her feelings by herself. Perhaps once a year she drops in for a brief chat, chiefly to reassure herself that he is still interested.

VOL. 9 195

Not every psychoneurotic patient responds as well as the patient I have just described. Furthermore, a short article cannot possibly cover all the facets of psychotherapeutic treatment. Problems of setting limits to interview time and to telephone conversations, the question of what to say and how to handle the patient's relatives, and the important area of the physician's own feelings and how to prevent them from interfering with treatment all require discussion. Most of these problems are taken up at greater length in the books and articles mentioned in the bibliography.

The appropriate use of medication is a frequently occurring problem. Unfortunately no medication attacks the cause of a psychoneurosis, and unless the patient's illness is self-limited, medication only provides temporary symptomatic relief at the cost of new problems of habituation and resistance to psychotherapy. On the other hand, medication is often useful as an adjunct to psychotherapy. I have found no magic in the new tranquilizers, and in office psychotherapy I tend to use older, less expensive, and equally effective drugs such as phenobarbital.

It is not always easy to decide whether a psychoneurotic patient should be referred to a psychiatrist. The patients at either end of the scale of chronicity are least in need of referral; the acute, isolated episode is not likely to recur, and the chronic hypochondriac is not likely to benefit sufficiently to justify the referral. A patient such as Mrs. C., who would be located near the middle of the continuum, is a better candidate. In order to avoid the appearance of rejecting a patient, the physician should make the referral initially for consultation rather than for treatment or disposition. However, when the physician decides to refer, he should recommend it with a definite and unequivocal statement of its importance and of his confidence that it is appropriate. Occasionally the patient will require two or three interviews to discuss her feelings about the referral; but once having made the decision, the physician is well advised not to compromise to the extent of ordering further tests in an effort to rule out the patient's concept of organic illness.

REFERENCES

1. Aldrich, C. K.: Psychiatry for the Family Physician, New York, 1955, McGraw-Hill Book Co., Inc.
2. Aldrich, C. K.: The Physician and the Neurotic Patient, M. Clin. North America **42**:555, 1958.
3. Balint, Michael: The Doctor, His Patient, and the Illness, New York, 1957, International Universities Press.
4. Barhash, A. Z.: Psychiatric Techniques and General Practice, J.A.M.A. **146**:1584, 1951.
5. Colby, K. M.: A Primer for Psychotherapists, New York, 1951, The Ronald Press.
6. Levine, Maurice: Psychotherapy in Medical Practice, New York, 1949, The Macmillan Company.
7. Levine, Maurice: Principles of Psychiatric Treatment, *in* Alexander and Ross: Dynamic Psychiatry, Chicago, 1952, University of Chicago Press.

DL.
9
959

DEPRESSION, BRAIN DAMAGE, AND CHRONIC ILLNESS OF THE AGED; PSYCHIATRIC DIAGNOSIS AND TREATMENT

ALVIN I. GOLDFARB, M.D.,
NEW YORK, N. Y.

From the office of the Consultant on Services for the Aged, Department of Mental Health

(Received for publication Dec. 1, 1958)

> All physicians, yourselves included, are continually practicing psychotherapy, even when you have no intention of doing so and are not aware of it; it is disadvantageous, however, to leave entirely in the hands of the patient what the mental factor in your treatment of him shall be. In this way it is uncontrollable; it can neither be measured nor intensified. Is it not then a justifiable endeavor on the part of the physician to seek to control this factor, to use it with a purpose, and to direct and strengthen it? This and nothing else is what scientific psychotherapy proposes.
>
> Sigmund Freud, On Psychotherapy (1904)

VOL
9
195

INTRODUCTION

THE most common disease of old age is mental illness. Successful treatment of primary mental disorder as well as the amelioration of emotional distress related to failing general health is often possible in aged persons who seem unlikely to profit from special care and who appear to have a short life expectancy. Persons in this age group frequently have obvious physical signs and symptoms related to serious somatic disorder of poor prognosis and therefore their mental symptoms may either escape attention or be ignored. This is unfortunate since every sick person is frightened or anxious and every person with fear or anxiety, for best results in medical treatment, should have care which includes psychiatric understanding. Pessimism aroused by long-term illness is often unwarranted; psychiatry can make considerable contributions to the medical care and comfort of the aged mentally ill even though they are chronically ill, debilitated, or brain-damaged. The disturbed, depressive, and confusional states so common to the aged are related to fear and anger which can be ameliorated. When this is done the patients often improve quickly. Medical care, the best of food and shelter, and socially supportive measures may fail to bring comfort and improve behavior to older patients if psychiatric understanding and psychotherapeutic attitudes are absent.

It is the intent of this paper to review briefly the location of aged mentally ill persons with limited resources and the classification of their disorders, and to discuss an operational concept for psychotherapy and the establishment of relationships with them. The point of view suggested has helped in the constructive evaluation of successes and failures in the treatment of aged ill persons and has served as a framework for the instruction of persons responsible for their care. In order to present information of value in the psychiatric management of aged mentally ill persons as distinct from other social groups, discussion will be limited to the disorders developed or revealed in the senium which are most frequently encountered by the psychiatrist and which present the most important

problems to the community at the present time. The working principles, however, are applicable to younger individuals in whom long-term illness, occurring in a setting of poverty and social deprivation, is accompanied by behavior disorder.

In this paper an aged person is arbitrarily defined as anyone 65 years of age or over. By mental disorder is meant any disturbance of mentation which (1) impairs orientation, memory, or judgment, (2) provokes social friction, or (3) is characterized by subjective and private or obviously discernible mental suffering. States characterized by memory loss consequently are considered to be mental disorders which warrant psychiatric attention although they may not always require treatment which aims to alter behavior.

CATEGORIES OF MENTAL DISORDER IN OLD AGE

The Brain-Damaged.—Aged mentally ill persons fall into several groups. The largest group of seriously disordered persons are the aged who are chronically ill, many of whom are brain damaged. They are often regarded as the "stereotype" of old age. This large number of aged patients poses the most important problem of medical and psychiatric care at the present time. Many of them have mental disorders which are masquerading as, or "hiding behind," physical illness. In others physical disease is aggravated by emotional disturbance. Sixty per cent of about 8,000 persons 61 years of age or over admitted serially to a general hospital over a period of 30 years for physical symptoms were considered to be mentally abnormal by the medical staff, who undoubtedly avoided making "stigmatizing" diagnoses. Eighty per cent of them were diagnosed as having brain damage or systemic disease to which the disorder was referable and only 20 per cent were classified as suffering with psychoneuroses, reactive depression, or endogenous mental disorder.[1]

Two-thirds of all persons referred for psychiatric care in a home for aged had behavioral disturbance associated with brain damage. The incidence of disorder appeared to be about 12 per cent in all decades above 65. Reasons for referral in the seventh decade were for depression or disturbing behavior; in the eighth decade to these were added persons with disorientation. Disorientation was the chief reason for referral in the ninth decade. Referral complaint and psychiatric diagnosis agreed perfectly only with respect to chronic brain syndrome and disorientation. Patients with chronic brain syndrome, psychosis, or psychoneurosis might be referred with a primary complaint of depression or disturbing behavior. When disorientation was severe enough to be the primary complaint of the referring persons, the psychiatric diagnosis was always chronic brain syndrome.* Depression and angry and paranoid behavior as well as confusion are therefore seen to be common in aged brain-damaged persons, and the likelihood that these reactions occur in a setting of brain damage is seen to increase with age. Even more clearly related to brain damage than age, however, is physical illness.[2] Patients such as these contribute to the large number of first admissions to mental hospitals.

*These observations were made by the author at the Hospital and Home for Aged and Infirm Hebrews of New York. They were presented in detail in Workshop No. 38 at the Annual Meeting of the Orthopsychiatric Association, March, 1958.

Aged, Grown Old in the Hospital.—Next in number are those who have had frequent readmissions or have become old in mental hospitals; the group consists chiefly of schizophrenics but includes some persons with manic-depressive psychoses, so-called involutional psychoses, and a scattering of other disorders. The persons who have remained in mental hospitals until old age are not a subject of discussion in this paper. They more logically belong to the group of chronic patients who have become "barnacle-ized"* by long residence in a socially barren and empty community and who have acquired symptoms referable to their removal from normal social stimuli and interactions because of their institutional life.

Later Developing or Recurrent Psychoses.—A third group of mentally disordered aged consists of the endogenous psychoses and the disorders of content which are revealed or appear to develop in later life. Many of these persons are indistinguishable from the former group except that they have escaped long-term hospitalization. This escape is due to better general health, economic resources, family protection, or special skills or occurs because the symptoms failed to mobilize community action. In most of them the depressive, elated, agitated, or mixed alterations of thought and behavior antedate old age but for a variety of reasons have not required or resulted in hospitalization. Information from private hospitals suggests that approximately 50 per cent of older persons admitted for treatment have affective (manic or depressive) psychoses in the absence of brain damage. State hospital statistics are quite different: the number of persons with affective disorders admitted for the first time in old age is scarcely one-tenth of the total who are admitted for hospital care when 65 years old or over.[3] Whatever the incidence of endogenous depressions in the aged, they seldom first attract attention after the age of 65 years. Any of the mental disorders of youth may persist into old age to be modified or complicated by events in the senium. Since depressive episodes of earlier onset persist and recur, the prevalence of such illnesses in the old age group is high, and it is possible that high suicide rates in the aged reflect this cumulative effect as well as the reaction to adversity, ill health, and social neglect.

A first attack of so-called "involutional melancholia" may occur in this older age group and recurrences of this disorder are common in the later years.

Psychoneurotic Older Persons.—The psychoneurotic aged, a fourth group, are common rather than rare. With this group should be included the so-called psychosomatic or psychophysiologic disorders. Although certain psychophysiologic reactions tend to "burn out" or decrease in intensity in old age because either the most seriously afflicted die or physiologic changes alter somatic reaction potentials, other reactions such as constipation, anorexia indigestion, and insomnia may increase in number.[4]

THE CLASSIFICATION OF BRAIN-DAMAGED AGED PERSONS

Acute Brain Syndrome.—The acute brain syndrome is commonly known as delirium. These delirious reactions are described elsewhere in this symposium

*This picturesque descriptive term was first used by Paul H. Hoch, Commissioner, State of New York, Department of Mental Hygiene.

VOL. 9 1959

by Dr. Engel. In the elderly and aged they are frequently associated with painful, febrile, or exhausting states. Pneumonia, bacteremia, acute glaucoma, and cardiac failure are often accompanied by delirium. Dehydration, metabolic disturbance, and drug intoxication may be underlying causes. All episodes of "delirium and confusion" in aged persons should be a signal for a comprehensive medical approach. Rapid appraisal of the accompanying physical disorder should be made and vigorous treatment initiated because many of these disturbances may be reversible. In these disturbances psychotherapy may be helpful, but it cannot replace necessary medicine or surgery. Conversely, although good general medical care has an excellent psychotherapeutic effect, the best of such care must include psychotherapy if excess of fear and anger complicate the illness.

Chronic Brain Syndrome.—Brain damage in the aged, "chronic brain syndrome," is presumed present when there is evidence of defects of orientation, memory, and comprehension. Such defects are presumptive evidence of "more or less irreversible, diffuse impairment of cerebral tissue function." However, as Rothschild has emphasized, there does not appear to be a direct quantitative clinicopathologic correlation between the degree of brain damage and the clinical signs and symptoms in aged persons.[6] The lack of positive clinicopathologic correlation may be partially explained by insufficiently strict application of clinical diagnostic criteria for both type and severity of disorder. In some hospitals there is a tendency to diagnose cerebral arteriosclerosis solely because of the presence of hypertension or peripheral evidence of vascular disease. Brain syndrome should not as a rule be ascribed to cerebral arteriosclerosis in the ababsence of a history or signs of cerebrovascular thrombosis. The tendency to ascribe most disturbances of mentation in aged persons to cerebral arteriosclerosis is possibly one reason why this perfectly sound classification has tended to become meaningless and has fallen into disrepute.

An illness or accident may usher in a state of chronic mental impairment. Chronic brain syndrome of slow or rapid progression occasionally manifests itself for the first time in aged persons after a fracture of the hip, a seemingly trivial head injury, an infection, or an episode of cardiac decompensation. It may be that a marginally supported central nervous system temporarily deprived of its metabolic requirements suffers irreversible damage with these or similar insults. Some of the damage may be preventable by early and vigorous treatment. The differentiation of the two most common etiologic subclassifications of chronic brain syndrome is discussed below.

Cerebral arteriosclerosis: As mentioned before it is not uncommon for physicians to make the diagnosis of cerebral arteriosclerosis on the basis of the age of a mentally disturbed person or by "elimination" of other disorders. Age may be a useful criterion in that the "younger" old people in their seventh decade of life are less likely to have senile brain changes than the older group of the eighth, ninth, and tenth decades, but "old age" is too often erroneously regarded as synonymous with cerebral arteriosclerosis.

Cerebral arteriosclerosis may be diagnosed as an etiologic factor when the onset of symptoms occurs in early old age, when the patient shows evidence of

arteriosclerotic-cardiovascular-renal disease, a clear history of "strokes," neurologic signs of focal cerebral damage, emotional lability, or paranoid trends, and when the course of the disorder is episodic or fluctuating in severity. Occasionally a similar history and course are seen with expanding intracranial lesions, especially those of cystic types. An electroencephalogram and x-ray of the cranium and chest are advisable to rule out intracranial primary or metastatic tumor.

Senile brain damage: Senile brain disease is usually slow and insidious in development, often with persistence of good social adjustment because of well-automatized patterns of behavior. It does not give rise to focal neurologic signs. The emotional lability and paranoid trends which occur with senile brain changes are usually clearly related to previous character trends and are often merely an exaggerated recapitulation of behavior demonstrated in the past. With senile brain disease there is steady progression of the disorder, sweeping disturbance of memory, and frequently bland confabulation which "evades" the defects. This is in contrast to the episodic and remissive course of arteriosclerotic brain disease, the preservation of many intellectual functions in such afflicted persons, and the more obvious feelings of fear and frustration with which arteriosclerotics react to memory loss and disorientation.

"*Dementia*".—The clinical diagnostic term "dementia" is often applied to the aged persons described above who have defects of orientation, memory, and judgment and often lability or abnormality of mood. If at the time of examination they do not appear to present serious problems of adjustment in their social context these "demented" persons may be excluded from the ranks of the mentally disordered because they are not adjudged "psychotic." This differentiation is ill-advised. Many such persons make a fair adjustment due to their well-automatized patterns of good social adaptation. Yet, most of them can withstand little adversity and react to infection, trauma, and social disturbance with episodes of confusion, distortion of thought, agitation, or depression and therefore should be recognized as mentally ill.

CLINICAL DETERMINATION OF BRAIN DAMAGE

A history of episodic or persistent forgetfulness, disorientation, or bewilderment which interferes with daily routine, adequate self-care, and self-protection, or is provocative of social friction is presumptive evidence of brain damage. Nevertheless, the direct examination of aged persons with this history may reveal an uncomplicated disorder of affect or a predominantly affective disorder with minimal brain damage. In the differentiation of such disorders, routine psychologic testing is not as useful as the psychiatric interview. When there is disorientation for time, place, and person which persists throughout one or more psychiatric interviews of at least 15 to 20 minutes, in which the aged person has had ample time and help to regain his composure, it can be assumed that brain damage of significant degree is present. The forgetfulness and disorientation, brought out by the excessive emotion engendered by a psychiatric interview, must be considered as presumptive evidence of significant brain damage,

VOL 9 195

even though they decrease when the patient is put at ease. The correct or adequate orientation of an aged person with depression and no brain damage can be established by careful, patient interview; the confusion of an aged person who has poor concentration, hypochondriacal rumination, or morbid preoccupations or exhibits sabotaging hostility to the interviewer will not be attributed to brain damage if these characteristic signs of a depression are recognized.

A helpful auxiliary test for brain damage, which often dispels doubt about the patient's condition, is the face-hand test. The face-hand test is a simple clinical application of the method of double simultaneous tactile stimulation. It consists of touching the patient on the cheek and the dorsum of the hand simultaneously. In all, 10 trials are employed. Eight of these are stimulation of asymmetric body parts (face and hand) and two are stimulation of symmetric areas (both cheeks and both hands). The patient is first tested with his eyes closed. He is told to point to or verbally indicate where he has been touched. If he reports only one of the stimuli on second trial he is asked if he was touched anywhere else.[7]

OL.
9
959

Green and Bender have shown this test to be a sensitive index of cerebral dysfunction.[8] In contrast to normal adults who learn to identify both stimuli within the first few trials, adults with severe mental changes associated with brain disease make persistent errors, many of them even when tested with eyes open. On simultaneous stimulation of face and hand, the face stimulus is generally perceived, errors being restricted to the hand stimulus. The errors may be grouped as: (1) "extinction," failure to report the stimulus, (2) "displacement," when the stimulus is displaced to some other part of the body, generally the opposite cheek, and (3) "exosomesthesia," displacement of the stimulus into extrapersonal space. Simultaneous stimulation to symmetrical body areas, face-face or hand-hand are generally correctly perceived by all subjects.

If the subject with eyes closed fails to perceive and report correctly both stimuli within 10 trials, the test is "positive" and presumptive evidence of brain damage. It should then be repeated with the subject allowed to keep his eyes open. Errors made with eyes open are clear evidence of diffuse brain damage.

Persistent errors in reporting perception of double simultaneous stimulation of the face and hands is evidence of decreased cerebral functional capacity and is presumptive evidence of brain damage in an aged person even when affective disorder is clearly present. There is often confusion on the part of physicians as to how the cultural and educational background of the person shall be considered in evaluating a psychiatric condition in which the mental status of the person must be determined by tests which depend upon education and intellectual interests. Scant education, unskilled occupation, and poverty appear to be etiologically relevant to the disorientation and social disturbances of the aged with brain damage.[9] We cannot expect people to dredge out of themselves what experience and opportunity have never put in, and therefore tests of memory, intellectual function, and even orientation for time may be misleading. The face-hand test, however, appears to examine the capacity to remain alert, in good personal contact, and to grasp and solve the problems of perception required for minimally adequate relationship to the social environment.

PSYCHIATRIC TREATMENT

General.—The disturbances of thought, feeling, or action of brain-damaged aged persons are highly variable, not only from person to person, but also within the same person from time to time. Although the brain-damaged person must be considered as having a mental disorder, he is not always significantly disturbed or socially disturbing. Brain-damaged persons may therefore be divided into two groups: those with brain damage without disturbing behavior and those with significant brain damage whose behavior is disturbing. What constitutes social disturbance or even mental suffering is not easily defined. Aged persons with various symptoms and signs tend to gravitate to special institutions for care, but the type of residence is no indicator of the mental or physical functional status of the aged individual. At best it is a reflection of geographically or temporally bound social and medical judgment. Social and economic factors serve to protect many mentally ill persons from identification as psychiatric problems or from hospitalization. At times the person's character and background is such that the symptomatology evolved does not distress the community. At other times the community is especially tolerant either because of enlightenment or because of ignorance.

Old persons with mental illness and limited ability to care for themselves when "discovered" present a problem of interwoven physical, mental, and socioeconomic problems; many of them need a regulated, protective environment, so-called "sheltered care." The problem of providing adequate medical and psychiatric care for these aged persons has become more acute in recent years due to their great increase in numbers.

About them Hawkins has said, "They are very apt to be delirious, incontinent, bewildered, remonstrative, and otherwise difficult to manage. . . .Their treatment tends more and more to be of the kind that individual physicians cannot give adequately. . . . the multiplicity of problems presented causes no little debate as to how to handle them properly. Some cases have been shunted from one institution to another as mental disturbances, infectious diseases, surgical requirements, and general incapacity in turn predominate as the most pressing problem of the moment."[10]

An attempt to solve the problem is evidenced by the increase in the number of institutions known as nursing homes and old age homes. Such shelters are intended to provide residential facilities, supervision, nursing, and medical care short of that which should be given in a hospital. The increasing availability of Social Security to aging persons has decreased the number of persons who appeal to such homes because of poverty and the need for board and lodging. At least 5 per cent, and more likely 20 to 25 per cent, of persons 65 years old and over in the community have mental disorders which make them eligible for admission to a mental hospital.[11] Progressive illness and social problems intertwined with psychologic and emotional disturbance are now the chief reasons for application for admission to nonhospital shelters. Illness, personal anxiety, dependency, or interpersonal friction with people around them lead to application to old age homes. When physical impairment is notable under such circumstances, a nursing home is selected. Both of these types of institutions are consequently serving many aged persons who have mental disorders associated with physical

VOL 9 195

illness and with brain damage. Exclusive of state hospitals the largest concentration of such persons is found in homes for the aged and nursing homes. A significant number live in their own or others' homes in the community and a smaller number are in general hospitals as long-term patients. The aged with affective and paranoid disorders gravitate to private mental hospitals and state hospitals or are admitted to nonhospital shelters. Many of them are unrecognized in the community. The association of physical and mental disorders in the aged and the etiologic importance of actual brain damage or physiologic nonsupport of the brain in mental disorders of older persons makes obvious their need for comprehensive medical care.[12]

While the more purely affective disorders may respond to psychiatric treatment even in the presence of physical ill health, the depressive and paranoid reactions in association with chronic brain syndrome almost always require general medical treatment as a basis for good psychiatric care.

For practical reasons of planning and treatment it is important to differentiate the disorders without brain damage from those in which brain damage is present because the outlook for improvement and for life is quite different in the two groups. The treatment of affective disorders in the aged differs little from that of younger persons. There may be a greater need for family cooperation, social work aid, and assistance with living and economic arrangements. The disorders, however, do respond well to electroshock therapy and to pharmacotherapy as well.

The chance of improvement in behavior with treatment, and probably also the prognosis for life, is better in the brain-damaged aged who have concomitant affective disturbance than it is in those who are predominantly disoriented and confused. It is not yet certain whether this is related to age—it appears more likely to be related to the severity of structural damage, not of the brain alone, but in general—that is, to physical health. Aged persons with affective disturbance and no brain damage appear to have a better outlook for survival than do brain-damaged persons. Affective disturbance in persons with ill health or poor educational background or with whom we have difficulty of communication because of language or cultural differences may lead to mistaken diagnostic impressions. Electroshock treatment or other active measures which would shorten the course of the illness may not be made available to them if they are mistaken for brain-damaged persons. This applies as well to the many persons with brain damage, symptoms of which are exaggerated by accompanying severe disturbance of mood.[13]

PSYCHOTHERAPY

The behavior of disturbed aged patients may be extraordinarily responsive to psychotherapeutic measures. For the purpose of this paper, "psychotherapy" is defined as a controlled and consistent attempt to influence behavior favorably and to enhance the sense of well-being of patients by means of an interrelationship which the therapist strives to establish. A psychotherapeutic relationship, however, does not require cooperation of the patient. Psychotherapeutic relationships often develop without either patient or helper becoming aware of any intent to alter behavior, improve mood, or increase self-esteem. Similar uncon-

trolled and unrecognized relationships when not beneficial, may be called "psychonoxious." Observations of the relationships between aged persons and their families, friends, or an institutional staff have provided clues helpful to the development of psychotherapeutic relationships. Observation of how unhappy people heal or harm themselves through their attachments to others reveals the patterns of dependent and interdependent behavior which sustain or traumatize emotionally disturbed or disabled patients. When the most helpful aspects of these relationships are recognized and fostered by physicians and their aides the patients receive the required reassurance and support that leads to improvement in behavior and decrease in problems of management.

The goals of psychotherapy are to help the aged ill individuals toward comfort and pleasure where possible, to preserve their families' unity, and to help both aged persons and their families toward legitimate satisfaction and relief from, or avoidance of, guilt in the part they play in each other's lives. The treating physician is thus obliged to assist the community, especially as it is represented by agencies and other institutions, in its usually fragmented efforts to maintain an ordered mutually cooperative society.

For treatment to yield the best results the physician should become aware of the factors relevant to the development and the perpetuation of the disorder, since these may be useful in an attempt to move the patient from sickness to health. The physician searches for, attempts to evoke, and encourages the use of the aged patient's old effective patterns of action.

The aged person should be seen as one who has lost physical, intellectual, and social resources available for his life adaptation in the past. These losses make it impossible for him to maintain himself without help. He may come to utilize progressively more and more inefficient and disturbing methods of obtaining aid, while at the same time suffering unnecessarily and declining in strength and social skill. Any one of the losses alters his self-esteem and affects his actual functional capacity. Of all, probably the most frightening is loss of memory and capacity to remain oriented. The loss of identity and the loss of control which occur with brain damage provoke profound emotional response.

Loss of Resources, Persons.—The death of friends or relatives and personal illnesses are among the most significant losses of resources in old age. Insufficient emphasis has been placed upon the importance of bereavement as a stark reminder of the aging person's own helplessness and vulnerability. The death of a relative or friend is usually considered from the point of view of its effect on the patient through separation from an individual on whom he is emotionally dependent. The bereaved person is considered as one who suffers because of frustrated needs and feelings of abandonment especially when the death is of a parental surrogate or persons for whose role no convenient substitution can be made. Also the death is considered as giving rise to feelings of guilt about previously experienced or presently operative feelings of hostility toward the departed.

The factor which should not be neglected is the almost overwhelming fear about one's own vulnerability and mortality which death of another arouses. Even the death of a pet may provoke disturbance and depression. The fear of death is seen frequently in the aged; sometimes they verbalize it, but more fre-

VOL. 9 1959

quently they cannot. The death of a friend or relative, especially if he be younger, may provoke extreme exacerbations of anxiety. These occurrences become more frequent as the individual grows older.

The anxiety thus provoked is manifested according to the patterns of discharge available to the older person in terms of his character structure and social context. In all, fright and anger are present; these emotions may be organized into depressive and paranoid reactions. In many the anxiety leads to hypochondriasis, attenuated anger manifested as irritability, and as hostile clinging behavior. Within a home for the aged, anxiety after the death of fellow residents is often revealed by a flight, with somatic complaints, to the physician as savior. In this appeal to the doctor the physical symptoms are apologetically and fearfully presented. The complaints to the physician may be deprecated or he may be ingratiatingly approached or implicitly accused of neglect. At times there may occur seemingly irrelevant but tearful mention of the recent loss or the personal crisis it has evoked. Often in an institution, a disturbed aged person is seen in a grieved and frightened state which appears to be inexplicable because the preceding emotional crisis is unknown to the physician or psychiatrist. If the doctor confers with an alert social worker, the event often can be directly related to the patient's receipt of a letter, a telegram, or a visit in which news of death or serious illness has been reported to the aged person.

The death of friends or relatives may cause or increase the isolation of aged persons. There are indications that the isolated person loses his sensitivity for perceiving social demands. His response to those around him becomes inappropriate and he acquires nuisance value. His annoying behavior leads to social action which further isolates him—a serious discontinuity of communication between him and his social world has occurred. Further isolated, he becomes less perceptive of the social requirements, his behavior worsens, and retaliative measures toward him become extreme through such threats as "transfer to a mental hospital."[14]

Loss of Resources, Health.—A fracture of the hip, so common in the debilitated, malnourished, sedentary aged who have decreased strength of bone, especially if it occurs with little trauma or even spontaneously, and preceding rather than following a fall, is a frightening, bewildering reminder of waning strength and impending dissolution. It leaves the aged person with feelings that he has no defense against his own decay and that he is helpless and unprepared. He then faces life with feelings of fear and of possible or impending catastrophe. The preoccupations of old people with illness, operations, accidents, and violence are not only clues to resentments and rages, long-harbored or recently revived, but also to their own sense of vulnerability, their fear of damage, and their concern with the ultimate helpless state—death. Their preoccupations are like the nightmares which follow a catastrophic situation.

From this point of view much of the seemingly hypochondriacal complaining and agitated search for proper medical attention or for more salutary living conditions on the part of aged persons can be understood as their acting in terms of fears generated by feelings of helplessness in the face of awareness of mortality.

Invalidism and Dependency.—As an example of the consequences of loss of resources on brain-damaged persons, the case of the symptomatically physically ill person is worth considering. Illness, disease, or impairment of function is provocative of anxiety since it threatens survival and comfort. Anxiety and fear may exceed the bounds within which they have alerting, organizing, and self-protective value. The impairment of function accompanying the illness is compounded by the disorganizing effect of the excessive fear. Fear may yield to anger which may have useful mobilizing action, but also may lead to disorganization of behavior. Both the fear and the anger may place a burden upon surrounding persons. Whatever the actuality, the belief that his emotions are unacceptable to others elicits within the emotionally disturbed patient a new fear, that of retaliation, and may evoke the pangs of conscience—guilty fear—a belief that one should be punished. These emerging emotions accompany and promote the development of a state of helplessness manifested in the behavior pattern of "disability." In the physically ill "disability" is seen as impaired neuromuscular function, as inhibition: inability "to do" for oneself, as bewilderment, puzzlement, vacillation, and indecision. The disability represents a dependent state.

Helplessness is possible in one person; dependency requires at least two. There is no dependent person in isolation. The dependency situation is one of parentification—that is, the delegation of one person as parental surrogate by another with the aim of obtaining care or the reassurance that care is available. It is recognized by way of feeling loved or dominant. The belief that one has acquired a parental surrogate is not generally admitted to awareness; it is felt as comfort and related to the decrease of anxiety. The dependency situation is a utilization of another for one's own protection and support. It is also a means by which one achieves pleasure.[15]

If a person who has learned to worship self-reliance or to have excessive regard for the rights of others becomes aware that he is behaving in a dependent manner, he is usually unable to avoid self-contempt, self-punishment, and self-justification, all of which become interwoven in his reaction. In the old, age itself may be regarded as justification for dependency and life experiences may be cited as punishments which have earned or paid for care in advance. Ingratiating, coercive, dramatic, or well-automatized affectionate behavior may be utilized as the means toward establishing and maintaining personal relations which promise care. All of these patterns can be found in the normal structure of life within our culture. When they appear in disorganized, fragmented, and disruptive forms or where there is a discrepancy between the patient's aims and the aims or understanding of his social environment, personal friction and disturbances are common.

It is true that excessive self-restraint from self-gratifying and productive activity may be imposed upon a sick person by an overly protective environment. How much a patient contributes to this action cannot always be easily determined. It may be wise to regard many of these relationships of invalidism and need for care as transactions in which physicians share and which the medical profession should frequently review for possible discovery of misguided pseudo-

therapeutic actions. Parasitic, symbiotic, or "dependent" relationships can be observed, for example, between patients, patient and office secretary, or patient and nurse. As mentioned earlier such relationships are not always beneficial, whether defined as "love" or, when the attachment is manifested by hostile trends, as dislike or hatred. Apathetic behavior must also be regarded as though it were a plea for help in re-establishing personal relationships. In the aged fear of retaliation may replace roles imposed by conscience or guilty fear. Fear of retaliation may immobilize the older person who then appears to be calling for attention and help through inaction and pseudosuffering. In such instances psychotherapy may be initiated by limited acceptance of the parental role. It must be recognized that there is a difference between dependency and the need for help, the reasonable search for it, and the sensible acceptance of it. Many persons who require material services also need a large measure of reassurance and support. These may be provided by plan if dependency is recognized as a relationship which develops from the propensity of persons who feel overwhelmed and helpless to seek and delegate responsibility for themselves to others and to see these others as possessing exaggerated capacities for helping.

In his relationship with the helpless person the physician must be aware of the temptation to accept for himself the patient's exaggerated estimate of his powers. He must not mistake the patient's delegation to him of parental powers, whether it be with affection, pseudoaffection, or anger, as a deserved and earned emotional recognition by the patient—he must never fall into the error of regarding this "love" as deserved affection from the patient, nor should he regard flattery and ingratiation or the patient's struggle to dominate him as proofs of his superior virtues. He should recognize unjustified criticism as the patient's misconception of him in terms of the angry relationship of a child with its parent. It is healthy for the doctor to have a cynical appreciation of himself, as one who knows enough to understand that a patient develops illusions about him and that he knows something about how to use the illusions which the patient creates for the patient's good. This attitude in the physician is more useful and more advisable than to believe himself to be a demigod with gifts of health to bestow. If contempt for the patient creeps into this sophisticated attitude of the doctor, then his value as a therapist is destroyed. A healthy recollection on the part of the physician of his own propensity to believe and to behave in an identical manner when ill and a reminder that the behavior of the helpless person arises from a biologically determined situation, the parent-child relationship of early childhood, which the doctor himself once knew, are salutary.

There is no set routine for psychotherapy in the aged. An attitude of flexibility about the details of treatment is highly desirable. So far as possible frequency, time and place of sessions and the manner in which psychotherapeutic sessions are conducted should be arranged to fit the special features of the individual case. The vehicle for psychotherapy may be history-taking, or it may be a review of physical symptoms and medical care in a clinic, private home, or office; the airing of complaints about residence, family, or attendants, or the discussion of an institutional environment in which the patient feels ignored.

The physician who reassures the old person that there is nothing wrong, nothing to be concerned about, and that the symptom is merely one which goes with age is often treading on the patient's most tender spot. To the patient, age is the mysterious killer he fears most. What he wishes to learn is that he has a disease which can be named, described, modified, controlled, and eradicated. Patients often prefer to be sick than to be old. They prefer to deal on a physical level with what many others, who are more calm, may be able to regard as a philosophic problem. There is some evidence to suggest that aged persons who have developed and retained a belief in ability to recover and of "youthfulness" in age are less likely to be fearful and complaining in old age even if ill. Also, old persons who have the capacity to grapple actively with a complex problem of perception are less likely to have prominent somatic complaints.[16] These bits of experimental evidence support the clinically derived thesis that persons who feel themselves capable of mastering problems and who therefore try to deal with their problems as they occur, are less likely to become preoccupied with illness. There are some aged persons in whom anxiety leads to controlled, problem-solving action rather than panic, or to misguided attempts to obtain the assistance of others by way of symptom formation. With most older patients the psychotherapeutic method is to permit the patient to delegate the physician as parental figure and to do nothing, within reason, which destroys his illusion of strength in his physician. The illusion provides him with a personal feeling of strength and power which increases self-esteem. With increase in self-esteem, anxiety or fear decreases, anger need not follow, actions which provoke guilt and fear of retaliation are held to a minimum, the patient's depression lifts, and his open demonstration of helplessness decreases. There is also a sense of security derived from alliance with the strong, protective, parental surrogate.

Mistakes commonly made in treatment of the aged patients are along the lines of excessive reassurance where the patient needs to feel punished, forgiven, and reinstated in order to regain self-esteem and comfort. Reconstruction, in an accepting interview setting, of incidents in which the patient feels he has lost face, and discussions, in which he regains confidence in his own intelligence, spirit, charm, or influence, are examples of therapeutic events which work toward the recapture of dignity through the relationship with the therapist.[17,18]

CONCLUSION

The disorganized and inefficient behavior of aged persons who have lost important resources to master their own problems can be regarded as motivated behavior oriented toward gaining specific assistance or the belief that protection and support is available from a parental surrogate. Having lost their own means of exercising control over the changes in their world, they seek to exercise control through the power of others. The predicament of the brain-damaged person is not dissimilar to that of the severely inhibited neurotic. The psychoneurotic patient is unable to act because his resources are impounded because of fear. He is moved to act, is unable to do so, and is bewildered, puzzled, and indecisive. His inaction leads to failure, to deprivation, to more fear, and to anger, self-hatred, and loss of self-esteem. The brain-damaged person, like the neurotic, is also unable to act; but for him it is related to sensory, homeostatic, effector,

or central nervous system integrative defects. Indecision, bewilderment, fear, and anger follow as in the psychoneurotic and frequently with more devastating results. Like the inhibited "neurotic" person, he needs a parental surrogate for help. The patient is usually unaware of his pattern of delegating persons as parental surrogates. He often hides it from himself and he almost always tries to hide it from others. It can be observed as invalidism, depression, paranoid behavior, or an unusually brave martyr-like or self-immolating attitude. These patterns conform to what is considered acceptable in the culture and what is acceptable to the person in terms of his own conscience structure and views of himself. Dependency relationships tend to manifest themselves in culturally or personally acceptable patterns such as exaggeration of illness; disability and invalidism properly understood may permit treatment to decrease the patient's suffering and also the burden he constitutes to society.

Reassurance and support can be offered the aged depressed and brain-damaged patient by way of the developing patient-doctor relationship. The success in winning over a protector may directly yield pleasure, the pleasure of mastering a social problem, and it also provides the patient with the comfort of having a powerful parental surrogate as ally.[19,20]

OL.
9
959

REFERENCES

1. Monroe, R.: Diseases in Old Age, Cambridge, 1951, Harvard University Press.
2. Kahn, R. L., Pollack, M., Gerber, I., and Goldfarb, A. I.: Relationship of Physical to Mental Status in Institutionalized Aged Persons, presented at Annual Meeting of Gerontological Society, Philadelphia, Nov., 1958.
3. New York State Department of Mental Hygiene: Annual Report, 1955.
4. Gerber, I.: Personal communication.
5. Diagnostic and Statistical Manual of Mental Disorders, American Psychiatric Association, Mental Hospital Service, Washington, D. C., 1952.
6. Rothschild, D.: Senile Psychoses and Cerebroarteriosclerosis, Stanford University, Calif., Chap. XI, *in* Kaplan, O. J., ed.: Mental Disorders in Later Life, 1945, Stanford University Press.
7. Bender, M. B.: Disorders in Perception, Springfield, Ill., 1952, Charles C Thomas, Publisher.
8. Green, M. A., and Bender, M. B.: Cutaneous Perception in the Aged, A.M.A. Arch. Neurol. & Psychiat. **69:** 577, 1953.
9. Pollack, M., Kahn, R. L., and Goldfarb, A. I.: Disorientation Patterns in Institutionalized Aged Persons, presented at Annual Meeting of Gerontological Society, Philadelphia, Nov., 1958.
10. Hawkins, M. D.: Medical Sociology, Springfield, Ill., 1958, Charles C Thomas, Publisher.
11. Downing, J. J., and Gruenberg, E. M.: Some Differentials in the Prevalence of Mental Symptoms in an Aging Population, New York State Department of Mental Hygiene Research Unit, Syracuse, mimeo., May, 1957.
12. Goldfarb, A. I.: Review of a Pilot Study on Psychiatric Services for the Aged in New York State, Report to Expert Committee on Aging, World Health Organization, Geneva, Sept., 1958.
13. Kay, D. W., Roth, M., and Hopkins, B.: Affective Disorders Arising in the Senium: Their Association With Organic Cerebral Degeneration, J. Ment. Sci. **101:**302, 1955.
14. Tec, N., Granick, R., Burdock, E., and Zubin, J.: Prognostic Factors in the Mental Health of Residents of a Home for the Aged, Columbia University and Biometrics Research, State of New York Department of Mental Hygiene, mimeo., 1958.
15. Goldfarb, A. I.: Contributions of Psychiatry to the Institutional Care of Aged and Chronically Ill Persons, J. CHRON. DIS. **6:**483, 1957.
16. Kahn, R. L., Zeman, F. D., and Goldfarb, A. I.: Attitudes Toward Illness in the Aged, Geriatrics **13:**246, 1958.
17. Goldfarb, A. I.: Psychotherapy of the Aged: The Use and Value of an Adaptational Frame of Reference, Psychoanalytic Rev. **43:**68, 1956.
18. Goldfarb, A. I.: Psychotherapy of Aged Persons: One Aspect of the Psychodynamics of the Therapeutic Situtions With Aged Persons, Psychoanalytic Rev. **42:**180, 1955.
19. Goldfarb, A. I., and Turner, H.: Psychotherapy of Aged Persons: Utilization and Effectiveness of "Brief" Therapy, Am. J. Psychiat. **109:**916, 1953.
20. Zeman, F. D.: Recent Contributions to the Medical Problems of Old Age, New England J. Med. **257:**317, 369, 411, 1957.

THE DEPRESSIVE ILLNESSES: THEIR DIAGNOSIS AND TREATMENT

JACQUES S. GOTTLIEB, M.D., AND GARFIELD TOURNEY, M.D.,
DETROIT, MICH.

From The Lafayette Clinic and Wayne State University College of Medicine

(Received for publication Dec. 1, 1958)

VOL
9
195

INTRODUCTION

ONE of the most ubiquitous phenomena of man's affective experiences is the disorder of mood called depression. Depression is a normal emotional response to a loss, such as a loss of a close interpersonal relationship, of prestige and position, of finances, or similar experiences. In addition depression is probably the most common of psychiatric symptoms, being associated with many psychiatric conditions and various types of physical disease. The symptom of depression can occur at any age, although it is difficult to recognize this during infancy and childhood. Definite depressive illnesses occurring in adolescence, adulthood, and during the senium have been described and are the subject of this presentation.

The primary symptom of depressive illness is the generally depressed affect of the individual. This varies considerably with the type of depressive illness, the personality make-up of the patient, his emotional defense patterns, and the nature of the precipitating factors. Often mild depressive symptoms are not overtly expressed by the individual in that his depressive preoccupations are suppressed from others, and therefore may be difficult to detect. However, indications of the depression are usually manifest in some patterns of behavior such as a general pessimistic attitude, hopelessness about the future, vague somatic complaints, fatigue, loss of sleep, appetite, and weight, difficulty in concentration, and disturbed psychomotor activity, such as either retardation or agitation. These symptoms may develop acutely and persist for a short time or occur in chronic form. The thoughts of the individual dwell on feelings of self-blame, worthlessness, self-abnegation, and frequently suicide. Associated physiologic phenomena are often of considerable significance and include such things as blurring of vision, dryness of the mouth, anorexia, constipation, general fatigue, and sometimes such symptoms as amenorrhea in women or failure of potency in men.

CONCEPTS OF NOSOLOGY AND ETIOLOGY

As yet there has been no satisfactory classification of depressive illness. This is largely related to the fact that etiologic factors cannot be clearly defined for many depressions.[1-5] Although typical illnesses such as manic-depressive disease, involutional depressive disease, and reactive depression have been

described and are seen in characteristic forms, it must be realized that there are many atypical types of depressive illnesses that do not seem to fit into these classical nosologies. The terms psychotic and neurotic are frequently applied to describe depressions. These terms are used mainly to indicate the degree of psychiatric impairment as judged by the subject's interpretation of reality and the degree of distortion in his adjustment to society. Retention of the terms involutional psychosis and manic-depressive psychosis do not clearly indicate the occurrence of milder forms of these disorders in which the behavior disturbance does not reach the stage of psychosis. Hence the degree of severity of the illness is no criterion for diagnosis, and so consequently the terms manic-depressive disease and involutional depressive disease are used.

In addition to a classification utilizing the concepts of psychosis and neurosis, attempts have been made to define depression in terms of exogenous and endogenous factors. The exogenous or psychogenic depression is conceived as being a reaction to a precipitating life stress of realistic or symbolic meaning. In an endogenous or physiogenic depression no obvious precipitating circumstances are evident, and endogenous physiologic factors, believed to be a resultant of constitutional and genetic variables, are thought to play the most important role. This classification cannot be maintained for a number of reasons. In the first place, it may be difficult to define precipitating circumstances, and having once defined them it is questionable to what extent they explain etiology of depression, since such circumstances are almost universal in their occurrence, and yet depressive illnesses are not universal reactions to these stressful precipitating events. In the second place, content of illness may be confused with precipitating factors in that what is being treated as etiologic may only be a symptom, rather than a cause, of the illness. Furthermore, in many endogenous depressions precipitating circumstances may occur. It is our opinion that precipitating factors are characteristic of depression but vary in terms of their overtness or covertness as well as conscious and unconscious meanings.[6] With careful clinical study of the patient and his family, such factors can usually be designated. Although constitutional and genetic disturbances have been ascribed an important role in depression, such variables have never been clearly defined in a consistent manner, although there is evidence that a predisposing genetic factor is in operation in a number of cases.[7]

The classification to be presented here attempts to avoid the inherent difficulties of the concepts of psychotic and neurotic, endogenous and exogenous types of depression. The first group of depressive illnesses are those in which depression is the primary symptom or the most significant symptom of the illness and include (1) grief reaction or acute situational depression, (2) reactive depression, (3) manic-depressive disease, and (4) involutional depressive disease. A second large group of illnesses is that in which depressive symptoms are common but are not the most significant symptoms of the syndrome. These include (1) depressive symptoms associated with schizophrenia, (2) depressive symptoms associated with toxic states, (3) depressive symptoms associated with organic brain disease, and (4) depressive symptoms associated with various physical diseases.

Irrespective of the primary or secondary nature of depressive diseases, the field of psychodynamics and psychoanalysis has approached the problem of depression etiologically in terms of predisposing and precipitating factors. These factors are presented in Table I. Ordinarily it is much easier to define a precipitating factor than a predisposing one. At times this precipitating factor may be realistic in terms of the life stress of the individual while at other times the stress may appear of a minimal nature but actually is symbolic of an unconscious conflict.

TABLE I. PSYCHODYNAMICS OF DEPRESSIONS

PREMORBID PERSONALITY FACTORS	PRECIPITATING FACTORS
1. Oral conflicts a. Dependency b. Aggression c. Ambivalence	1. Loss of love object a. Death of spouse, relative, or friend b. Threat of loss because of illness of spouse, relative, or friend c. Rejection or threat of rejection by sexual object
2. Rigid conscience and superego	
3. Personality structure a. Cyclothymic b. Anancastic c. Neurotic	2. Narcissistic injury a. Loss of prestige b. Economic loss c. Physical disease d. Accident and injury e. Demotion
	3. Competitive relationships a. For sexual object b. For prestige c. For dependency gratification

The common mechanism in depression is the mobilization of aggression and hostility by the loss of a love object, such as the death of a close relative, or a particular narcissistic injury, such as loss of prestige or economic loss.[8-12] The lost love object has had an ambivalent, hostile dependent significance for the patient, and he reacts to this loss as one of desertion and abandonment rather than in terms of the reality of the situation. Moreover, the depressed individual reacts with guilt to this mobilization of aggression and hostility and is unable to direct these feelings toward the environment. Rather the aggression and hostility is turned against the self which results in the depressed mood. In effect, this has the unconscious meaning of punishment to the self for the original unconscious or disguised feeling of hostility toward the love object. The depression reaches its most intense state when it is expressed in terms of a suicidal attempt. With suicidal attempts, death wishes originally directed toward the frustrating object have become expressed against the self. For this reason suicidal attempts in depression must be taken seriously. These psychodynamic factors are illustrated in Fig. 1.

The acute loss of a love object or a narcissistic insult most frequently produces a grief reaction or an acute situational depression. In an individual in whom the premorbid personality is well organized, this reaction is usually self-

limited. However, in those individuals whose premorbid personality is char acterized by neurotic tendencies, cyclothymic, or anancastic (obsessive compulsive personality traits) personality traits, a more pathologic reaction may occur. The precipitating factor may have a realistic significance for depressive disorders, but often a relatively minor event that has tremendous unconscious symbolic meaning of loss, rejection, and narcissistic injury may result in a reactive depression, manic-depressive, or involutional diseases.

Important premorbid personality factors as listed in Table I include unresolved problems of aggression that occurred during the oral phase of psychosexual development, intense dependency needs, affective ambivalence, and a rigid conscience and superego. Premorbid personality structures of cyclothymia and anancasism are significantly correlated with manic-depressive and involutional diseases, respectively.

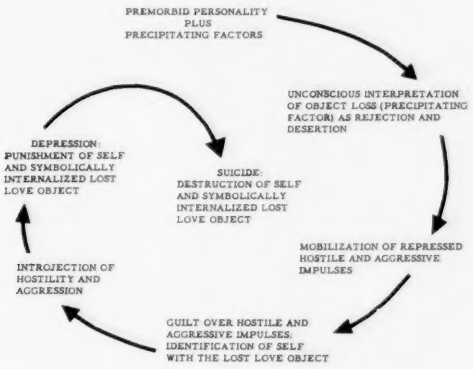
PREMORBID PERSONALITY
PLUS
PRECIPITATING FACTORS
UNCONSCIOUS INTERPRETATION OF OBJECT LOSS (PRECIPITATING FACTOR) AS REJECTION AND DESERTION
MOBILIZATION OF REPRESSED HOSTILE AND AGGRESSIVE IMPULSES
GUILT OVER HOSTILE AND AGGRESSIVE IMPULSES; IDENTIFICATION OF SELF WITH THE LOST LOVE OBJECT
INTROJECTION OF HOSTILITY AND AGGRESSION
DEPRESSION: PUNISHMENT OF SELF AND SYMBOLICALLY INTERNALIZED LOST LOVE OBJECT
SUICIDE: DESTRUCTION OF SELF AND SYMBOLICALLY INTERNALIZED LOST LOVE OBJECT

Fig. 1.—Psychodynamic mechanisms of depression.

In depression associated with schizophrenia, problems of aggression are also common, but other psychodynamic and physiodynamic factors may be of greater significance. With toxic states pharmacologic action of the toxic factor, such as alcohol and barbiturates, is often important, but individuals who use such intoxicants often have serious personality disturbances. The reaction of depression occurring in these states is partially dependent on the personality factors as well as the toxic agent. Depression associated with organic brain disease may be directly related to structural changes in the brain releasing premorbid personality trends but is frequently seen as an affective reaction to the loss of intellection and related functions. In depressions associated with physical disease certain important metabolic factors are often in operation as well as toxic ones, and at other times the depression may occur as an affective reaction to the physical disease.

The role of genetic and physiochemical factors in depressive illness has not been clearly defined. Kallman believes that there is a definite gene-controlled tendency to excessive mood swings in adulthood and in turn to manic-depressive illness.[7,13] A genetic factor may also be implicated in involutional illnesses.[7]

TABLE II. DIFFERENTIAL DIAGNOSIS OF DEPRESSIONS

ILLNESS	PREMORBID PERSONALITY	AGE AT ONSET	CONSTANCY OF DEPRESSION	SLEEP	APPETITE AND WEIGHT LOSS	SOMATIC COMPLAINTS	PSYCHOMOTOR ACTIVITY	AUTONOMIC SYMPTOMS	DIURNAL RHYTHM	SUICIDAL RISK	DELUSIONS AND HALLUCINATIONS	PSYCHOTIC BEHAVIOR	MEMORY LOSS
Grief reaction or acute situational depression	None characteristic	Any age	Variable	Normal-to-mild insomnia	Minimal	Minimal	Mild anxiety and agitation	None	Absent	Infrequent	Absent	Absent	None
Reactive or neurotic depression	Neurotic	15–40	Variable	Difficulty falling asleep	Minimal	Anxiety	Anxious behavior	Anxiety	Absent	Infrequent	Absent	Absent	None
Manic-depressive disease	Cyclothymic	18–50	Constant	Early morning awakening	Moderate to marked	Moderate to marked	Retardation	Dryness of mouth, constipation	Present	Frequent	Self-abnegation	Frequent	Mild functional loss
Involutional depressive disease	Anancastic	40–65	Constant	Early morning awakening	Moderate to marked	Moderate to marked	Agitation	Dryness of mouth, constipation	Present	Frequent	Self-abnegation, occasionally paranoid	Frequent	Mild functional loss
Depression associated with schizophrenia	Schizoid	15–40	Constant	Variable	Moderate to marked	Somatic delusions	Retardation or agitation	Anxiety in acute states	Absent	Occasionally	Paranoid	Characteristic	Mild functional loss
Depression associated with intoxication	History of alcoholism and addiction	18 and later	Variable	Variable	Minimal to moderate	Variable	Stupor to excitement	Variable	Absent	Occasionally	Occasional delirium	Frequent	Frequent confusion
Depression associated with organic brain disease	None characteristic	50 and later	Labile	Variable	Moderate to marked	Variable	Retardation or agitation	Variable	Absent	Frequent	Occasional delirium, occasionally paranoid	Frequent	Moderate to marked
Depression associated with generalized physical disease	None characteristic	Any age	Variable	Variable	Variable	Appropriate to physical disease	Reduction	Variable	Absent	Occasionally	Absent	Absent	None

VOL. 9 1959

The genetic factor is not in accord with simple Mendelian inheritance[14]; rather it has been postulated to be a single autosomal dominant of weak and variable expression. Another hypothesis is one of a multifactorial genetic basis.[15]

Neurologic, endocrine, and biochemical theories of depression have been postulated.[4] There is evidence to suggest diencephalic and associated autonomic nervous system disturbances in the manic-depressive and involutional illnesses. The sleep and psychomotor disturbances may be related to diencephalic pathophysiology.[16,17] However, no characteristic metabolic, biochemical, endocrine, or neurologic findings have been found for the involutional and manic-depressive disorders. Response to electroconvulsive therapy on an empirical basis suggests an alteration in diencephalic function that may be related to remission of the depression. It is well known that electroconvulsive therapy is associated with intense diencephalic and autonomic activity.[18]

Social and cultural studies suggest that these factors are significant in depression in that the incidence varies in different cultural settings.[19]

SYMPTOMS AND DIAGNOSIS OF THE DEPRESSIVE SYNDROMES

The major symptoms and differential diagnosis for various clinical syndromes presenting depressive symptoms are presented in outline form in Table II. It must be emphasized that there are many atypical forms of depressive illness and that an illness in an individual patient may present a mixed symptomatology difficult to classify.

Primary Depressions.—Primary depressions are those depressive illnesses in which the symptom depression is most significant.

Grief reaction or acute situational depression: Grief is a normal and appropriate emotional response presenting symptoms similar or identical with depression and related to a precipitating factor of exceptional circumstances which represents a consciously recognized external loss. A common precipitating factor is the death of a relative, particularly the spouse, loss of position and prestige in work, financial loss, or rejection by a desired love object. Here the depressive symptoms are not ordinarily intense or consistent, but fluctuate. Crying frequently occurs. Anxiety, agitation, and restlessness may be associated with the depression. Denial of the loss and displaced overt hostility may be expressed before a final resolution of the loss occurs. Sleep and appetite ordinarily are intact and there is little disturbed psychomotor activity. The grief is slowly relinquished with often the feeling that separation is temporary. The duration of the grief reaction is variable and is often defined by cultural attitudes toward death. Suicide is rarely a serious problem.

Reactive depression or depression associated with psychoneuroses: Much confusion exists as to what constitutes a reactive depression.[3] We use this term in limited ways, referring to those depressions associated with psychoneuroses. These illnesses have characteristic precipitating events that usually can be defined clearly, but these have an important unconscious symbolic meaning. In addition, there are many neurotic symptoms, particularly symptoms of anxiety with its psychologic and somatic manifestations. Sometimes chronic neurotic symptoms make it difficult to delineate a depression apart from the

subject's usual life course. The depressive symptoms are usually inconsistent and become reduced by reassurance from others. Appetite is variable with little or no significant weight loss. Many crying spells may occur. There is difficulty falling asleep with a tendency to sleep late in the morning and sleep may be frequently interrupted by unpleasant dreams. A history of neurotic tendencies prior to the onset of depression can be elicited. Suicidal risk may occur but attempts are infrequent. There is a tendency to blame others for current difficulties rather than one's self, but this is not elaborated in any paranoid fashion. There is no loss of contact with reality.

Manic-depressive disease: This illness has been referred to frequently as manic-depressive psychosis, but an increasing understanding of this illness has led to the realization that there are many mild forms of manic-depressive disorders that do not reach psychotic proportions in which the individual does not require hospitalization, showing only mild symptoms of depression. Such mild forms of this illness are frequently confused with a reactive depression. This illness, in mild or severe forms, may be precipitated by realistic or symbolic circumstances. In other instances it may be difficult to define a definite precipitating factor. The illness tends to occur early in adulthood and is characterized by recurrent periods of depression, occasional periods of mania (elation, excitement, pressure of speech, and grandiosity), with normal periods in between. Individuals suffering from this illness may have only one attack or may have a number of such attacks during a lifetime.

VOL.
9
1959

In this disorder, the depression is consistent with some diurnal variation, the depressive symptoms being more marked in the morning than in the evening. Sleep disturbance is one of early morning awakening and frequently is associated with little difficulty falling asleep. Crying spells may occur, but many patients complain of an inability to cry although they have the feeling that they want to cry very much. The appetite is poor and there is moderate-to-marked weight loss. Somatic complaints are characteristic. Thoughts of worry, self-blame, self-abnegation, and worthlessness are very common and may reach delusional proportions. Occasionally there are paranoid features. A loss of sexual desire and feelings of sexual pleasure, often associated with impotency in the male, occur. Autonomic phenomena include dryness of the mouth, constipation, and blurring of vision. Suicidal risk is always serious in these patients. Depersonalization may be present.

Psychomotor retardation is characteristic, and often the patient sits doing nothing, speaks slowly and softly in monosyllables with a sad facial expression. The inhibition of psychomotor functioning may be so great in some instances that a picture resembling stupor occurs. Such inhibited states can usually be overcome by the intravenous use of amobarbital sodium (Amytal) and racemic amphetamine sulfate (Benzedrine) in combination. With the administration of these drugs, the patient begins to talk and reveal his content of thought. Such a measure is helpful in differentiating the inhibited depression from the blocked, catatonic schizophrenic patient. The latter has many bizarre and paranoid ideas, often associated with hallucinatory phenomena, which are not characteristic of depression.

The premorbid personality of these individuals is often one of cyclothymia, i.e., frequent mild mood swings. Ordinarily there is remission of the depressive period in 6 to 18 months. Spontaneous remission of symptomatology is characteristic, but the seriousness of suicidal risk must be recognized in these patients, particularly during the periods of improvement.

Involutional depressive disease: This is a disorder most commonly occurring between the ages of 40 and 65, characterized by intense depressive symptoms, marked undifferentiated anxiety, a sleep disturbance varying from early morning awakening to an intractable insomnia, poor appetite, marked weight loss, moderate-to-marked somatic complaints, dryness of the mouth, constipation, and feelings of worthlessness. This illness tends to run a chronic course. The characteristic premorbid personality is that of an anancastic individual, i.e., a person with obsessive and compulsive traits, meticulosity, overconscientiousness, and parsimony.[20] Common precipitating factors in this illness include financial insecurity, sickness and death in the family, and conflicts over the emancipation of children. Female patients are often concerned with the occurrence of the menopause and loss of physical attractiveness. Illness in male patients frequently begins with problems regarding retirement, loss or change of position, and conflicts over working conditions. Sexual guilt is sometimes overtly expressed in the involutional depression. Delusions of sin and poverty, obsessions about death, and delusional fixation on the gastrointestinal tract and genital organs are common symptoms. Nihilistic delusions may also be expressed. These patients may become markedly undernourished and dehydrated and show toxic signs; as a consequence, many secondary deficiency diseases as well as susceptibility to infections occur. The use of sedation often complicates the symptomatology of this illness, leading to signs of confusion and intoxication. Although this depression may manifest itself in mild forms, all too frequently the patients suffering from this illness demonstrate behavior of psychotic proportions. Sucidal preoccupation is extremely common to the point where one-fifth of the involutional patients attempt suicide sometime during the course of their illness. Consequently, this illness is one of the major causes of suicides during the later period of life.

Secondary Depressions.—Illnesses in which depression is of significance but occurs secondarily to another illness are classified as secondary depressions.

Schizophrenia with depressive symptoms: Many patients suffering from schizophrenia may present symptoms associated with other psychiatric illnesses. Depressive symptoms are extremely common in schizophrenic patients, and in some instances these symptoms may be so severe as to confuse the diagnosis with manic-depressive disease. This is particularly true during the early stages of the schizophrenic process. Frequently when depression is of marked prominence, the illness may be referred to as a schizo-affective one. When depressive symptoms do occur in schizophrenia, they are usually manifest early in the course of the illness and persist only for a few months time. Associated symptoms of depression, such as sleep and appetite disturbances, are variable in their manifestations. The primary symptomatology of schizophrenia, including the disturbances in affectivity, associations, autistic behavior, ambivalence of thought and feeling,

and difficulties in conceptualization, is the manifestation of the illness on which a diagnosis is based. Somatic delusions are very common, along with characteristic schizophrenic paranoid delusions. Stupor or excitement may occur in these patients.

Depression associated with toxic states: Depressive symptoms may be related to extraneous toxic factors, particularly alcohol and drugs, and may occur during a period of acute intoxication or during a stage of physiologic and psychologic recovery from the effects of the intoxicant. It is extremely common to see the occurrence of depression after an incidence of heavy drinking of alcoholic beverages. At times this depression may become marked but is more frequently mild, associated with a variable insomnia, poor appetite, and slight weight loss. The individual may be retarded or excited. Feelings of guilt and remorse over the drinking are often expressed. Occasionally there may be some type of toxic delirious symptoms such as confusion, delusions, and hallucinations in addition to the symptoms of depression. Suicidal preoccupations occur and attempts at suicide may be made.

Depression associated with organic brain disease: Depression is often associated with organic brain disease regardless of the etiology of the organic deficit. Such symptoms may occur because of underlying neuropathologic changes releasing latent neurotic and aberrant personality trends, or as an emotional and symbolic reaction to the deficits in intellectual and emotional functioning characteristic of the organic brain syndrome. A loss of usefulness or the occurrence of social and economic problems may play an important role in the development of symptoms along with the organic factors. Organic brain syndromes in which depressive symptoms are common include, in order of frequency, arteriosclerotic brain disease, presenile and senile dementia, neurosyphilis, multiple sclerosis, Huntington's chorea, pellagra, postencephalitic syndrome, and cerebral neoplasm. Depressions associated with arteriosclerosis and senility frequently resemble the involutional and manic-depressive disorders. Suicidal attempts of a serious nature are frequently made. The depressive symptomatology associated with organic brain disease varies considerably. It may be mild to severe, the insomnia may be variable, the mood disturbance may be labile or consistent, and appetite may be poor with variable weight loss. In these symptoms it is not unusual to have expressed paranoid delusions, visual hallucinations, and other phenomena of a toxic psychotic nature. Confusion may be mild to marked depending upon the degree of intellectual deterioration.

Depression associated with physical disease: Depressive symptoms may occur in conjunction with some generalized somatic disorders and are seen frequently in relationship to infectious diseases such as influenza, typhoid, dysentery, Weil's disease, and infectious hepatitis. In the postinfectious depression, one sees malaise, headache, weakness and fatigue, hypersensitivity to light and noise, frightening hypnagogic hallucinations, lack of concentration, and listlessness. The patient is emotional, easily moved to tears, despondent, hopeless, and depressed. He may be retarded or anxious. The symptoms of depression may outlast the signs of the somatic disease. Other physical diseases frequently associated with depression are carcinoma, Addison's disease, pernicious anemia, and Cushing's disease. Sleep, appetite, and weight disturbances are variable.

VOL
9
195

Somatic complaints are often appropriate to the physical disease but may be greatly exaggerated. Psychomotor activity is ordinarily reduced but agitation may occur. The course of the depression is associated with the course of the physical illness.

SUICIDE AND DEPRESSIONS

In any patient presenting symptoms of depression, it is most important that the physician thoroughly evaluate the patient's suicidal potential. A number of depressions terminate in suicide, and, if suicidal proclivities are detected early and the depression is treated, many suicides will be avoided. As has been described, suicidal preoccupation is common in most depressions but is of most significance in the manic-depressive and involutional disorders. With suicide the intense destructive impulses mobilized by the aggressive conflicts are directed against the self and the symbolically internalized lost love object[21] (Fig. 1). Suicide remains a major cause of death; it ranks fourteenth among the major causes. Over 16,000 individuals commit suicide each year in the United States.[22] These statistics are probably low, however, since the stigma of suicide leads some physicians not to list it as the cause of death, and many so-called accidents are probably suicides. The number of suicidal attempts each year undoubtedly numbers hundreds of thousands.

Depressions are not the only illnesses that result in suicide, but the depressive mechanism is ordinarily in operation in most suicidal attempts. Suicidal tendencies are seen with alcoholism, schizophrenia, personality disorders, neuroses, and reactions to chronic and crippling diseases. The danger signals of suicide include the many symptoms of depression. Mood changes of depression, anxiety, restlessness, agitation, suicidal thoughts, history of attempted suicide, insomnia, loss of interest, digestive and nutritional symptoms, evidence of behavioral difficulties such as impulsive and assaultive behavior, and the general appearance of depression are factors that should be carefully evaluated.

Thoughts about suicide are probably experienced by almost everyone sometime during his life. A recent survey demonstrated that 80 per cent of 200 college students admitted having had suicidal ideas.[22] Many attempts at suicide may be made, but often these are not serious and are used to manipulate individuals and environmental situations. Differentiation between serious and nonserious concern over suicide and serious and nonserious attempts at suicide is very important.[23] Table III presents an analysis of suicidal attempts. In the serious preoccupation with suicide there is consistent depressive symptomatology, while this does not occur in the nonserious type. The intention is present with the serious attempt, while it is usually absent in the nonserious one. Personality difficulties such as impulsivity, alcoholism, and antisocial behavior are ofter seen in individuals making nonserious attempts, while these difficulties are infrequently present in the other group. The patient who makes nonserious attempts is often quite dramatic and hysteroid in his behavior. Precipitating factors in the nonserious type of attempt include marital incompatibility, divorce, and unrequited love. The recent death of a family member or friend is more likely to lead to a serious attempt. The person without serious intent

frequently informs others of his intent, while such behavior is less common in the other group. The older the individual, the greater the tendency for a serious attempt to occur.

TABLE III. ANALYSIS OF SUICIDAL ATTEMPTS

	NONSERIOUS	SERIOUS
1. Affect and mood	No consistent depression	Depressive symptomatology
2. Intention	Absent	Present
3. Personality difficulties (impulsivity)	Often present	Infrequently present
4. Alcoholism	Often present	Infrequently present
5. Hysterical symptoms	Often present	Infrequently present
6. Precipitating factors	Marital incompatability, divorce, unrequited love more common	Recent death of family member or friend
7. Attention and manipulation	Present and often admitted	Absent
8. Informing of intent	More common (one-third)	Less common (one-tenth)
9. Age	Early and middle adulthood	Middle and later life

Many physicians have difficulty evaluating the patient suspected of having suicidal thoughts.[24] Clues from the history, physical appearance, behavior, and information from relatives and friends are important in evaluating both the degree of depression and the concomitant suicidal tendencies. Thoughts of depression, self-accusations, self-blame, hypochondriasis, persecutory symptoms, with or without the expression of suicidal ideas, should lead one to take precautions against a suicide. Direct questioning regarding suicide should produce no harm when tactfully handled, and often the expression of suicidal ideas by the patient is therapeutic. This should be approached after a positive relationship has been established. Typical examples of questions that may be used are as follows: "You know it is not uncommon for people to have suicidal ideas and I just wondered if you have had any." "Do you ever think of harming yourself?" "Are you worried or preoccupied about suicide?" However, one must realize that answers to these questions cannot be accepted at face value and patients may readily deny suicidal intent although they are so preoccupied. Any patient with depressive symptoms, regardless of their admission of suicidal preoccupation and intent, must be considered a suicidal risk until proved otherwise.

TREATMENT OF DEPRESSIONS

The treatment of depression is dependent upon the evaluation of the intensity of the depressive symptoms, and the establishment of an accurate diagnosis. The principal treatments for depression include psychotherapy, pharmacotherapy, and electroconvulsive therapy. In depressions that are secondary to physical illnesses, it is of prime importance to treat the physical disorder.

Psychotherapy is of primary value in dealing with grief reactions, acute situational reactions, and neurotic or reactive depressions. The grief reaction or acute situational reaction ordinarily has a self-limited course and requires a

supportive and reassuring psychotherapeutic relationship rather than any attempts at uncovering possible unconscious factors that may be in operation. Sympathy and understanding on the part of the physician and the relatives is of great value in helping the patient live through a difficult period following the death of a relative or close friend. With a neurotic depression the treatment of the underlying psychoneurotic process by psychotherapy is indicated. The evaluation of the patient's life history, his interpersonal relations, his early conflicts, and current problems is necessary. It is important to understand the onset of the current depression and the meaning of the precipitating factors. Psychotherapy often may be directed toward relieving the patient of the emotional stress of the precipitating factors. However, this must often be viewed as a repetition of earlier similar disturbing experiences, and in this instance the treatment of the neurotic depression may aim at the alleviation of guilt, the expression of aggressive impulses, the gaining of insight, and the ability to handle his emotions more appropriately in the life situation. Here, formal psychotherapy may be necessary for many patients.

Psychotherapy, usually of the supportive type, is also indicated in conjunction with somatic therapies for manic-depressive disorder and involutional depressive disease. Rarely is uncovering psychotherapy indicated in these disorders. Various types of psychotherapy, depending on the problems presented by the individual patient, may be of value in management of depressions associated with schizophrenia, as well as those symptoms associated with some physical disorder.

The pharmacotherapy of depression is important in many cases regardless of the type of depression. Hypnotics are needed for the sleep disturbances. In mild depressions, even of the manic-depressive and involutional types, certain antidepressive drugs with supportive psychotherapy and a carefully supervised environment at home may be all that is necessary. These drugs may also be used in handling grief reactions and depressions associated with organic brain and general physical disorders.

A valuable treatment for mild depressions is the use of amobarbital sodium (sodium Amytal) and racemic amphetamine sulfate (Benzedrine) given together.[25] Dextroamphetamine sulfate (Dexedrine) may be substituted for the racemic amphetamine sulfate. The use of the amobarbital and amphetamine together produces a synergistic antidepressive action, and therefore these drugs are more effective when used together. They should be given on rising in the morning and at noon. Ordinarily amobarbital sodium in doses of 60 to 120 mg. is given with 5 to 10 mg. of amphetamine. If somnolence or drowsiness tends to occur with this regimen, the amobarbital sodium is decreased and the amphetamine may be increased. If excitement and restlessness occur, the opposite change in dosage is made. In the late afternoon (for instance, at 4:00 P.M.), a dose of amobarbital sodium may be given alone in order to produce a certain amount of sedation if needed.

Certain other antidepressive drugs have recently been introduced. Iproniazid (Marsilid) is one of the most effective drugs in the management of depressive symptoms.[26] However, because of serious side reactions and reports of a

number of deaths from this compound, it is not advisable that this be used unless patients are followed very closely. Methylphenidate (Ritalin) has also been employed in the management of depression,[27] but its effect usually is less than that of amphetamine. Consequently, it has a limited usefulness. If administered, the dosage is from 10 to 20 mg. given three times a day. The use of meprobamate and benactyzine hydrocholoride in combination (Deprol) has been applied in the management of mild depressions with some success.[28] Ordinarily this medication is given in the proprietary tablet that contains 400 mg. of meprobamate and 1 mg. of benactyzine and is administered three times a day. There are a number of new drugs, which are not currently available for prescription, that are being evaluated for their antidepressive action.

Most moderate and severe depressions of the manic-depressive and involutional type require electroconvulsive therapy.[18] Also some of the depressions associated with the senile and arteriosclerotic brain diseases necessitate this treatment. Eight to 15 electroconvulsive treatments given at the rate of three times a week usually terminate the depressive attack. Ordinarily this treatment is contraindicated in a neurotic depression. Electroconvulsive therapy shortens the duration of the episode of manic-depressive illness by at least 6 months.[29]

VOL. 9 1959

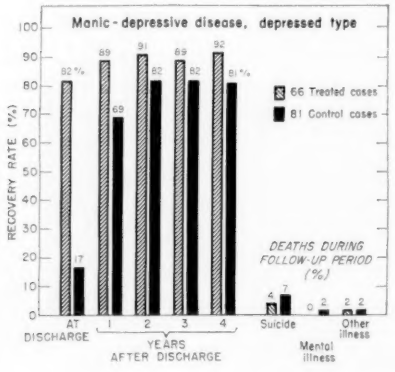

Fig. 2.

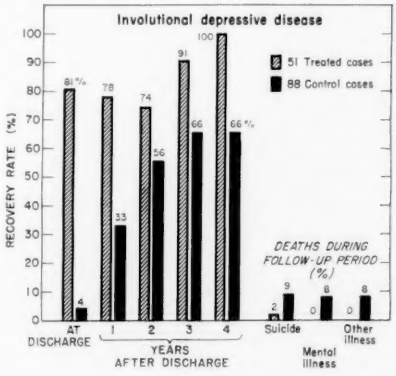

Fig. 3.

Fig. 2 illustrates the response to electrotherapy in the treatment of manic-depressive psychosis. Eighty-two per cent of cases treated with electrotherapy within 6 weeks of hospitalization showed recovery at the time of discharge, while for a similar length of hospitalization only 17 per cent of the control cases demonstrated this. At the end of one year after discharge 89 per cent showed recovery of those treated with electrotherapy while 69 per cent of those untreated had recovered. The results tend to become more equalized as the period of follow-up continues. Deaths during the follow-up period from suicide were more common in the controls than those treated with electrotherapy.

Fig. 3 illustrates the results of treatment in involutional depression with electrotherapy. At discharge after 6 weeks of hospitalization, 81 per cent of the involutional patients treated with electrotherapy responded, but only 4

per cent of the control cases did in a similar period of time. The marked difference between treated and untreated cases continued to occur with fewer spontaneous remissions in the control cases of involutional depression than in the control cases in manic-depressive illness.[30] Deaths from suicide were a more serious problem for the control cases than for the treated patients.

These figures clearly indicate the value of electrotherapy in the treatment of manic-depressive illness and involutional melancholia. Electrotherapy produces physiologic changes in the brain, which may affect the dynamic relationship between the repressing psychologic functioning and the inhibited aggressive drives.[31] This probably occurs by action upon the diencephalon and its related structures.

General medical management is important in handling depressions. In moderate-to-severe depressions hospitalization is definitely indicated. Because of appetite and weight loss associated with many depressions, there may be dehydration and nutritional deficiencies which need to be treated. Hence it is advisable to supplement the diet with vitamins and provide a high caloric intake and adequate fluids. Precautionary measures against suicide form another important aspect of the treatment.

In those instances where patients with depression are not hospitalized, it is important that there be careful management by understanding family members who will assume considerable supervisory responsibility in order to avoid suicide. Without this cooperation, no matter how mild the depression, the patient should be hospitalized for treatment. The early instigation of the more specific treatment measures aid greatly in alleviating the suicidal risk.

REFERENCES

1. Lewis, A.: Melancholia: a Historical Review, J. Ment. Sci. **80:**1, 1934.
2. Lewis, A.: Depressions, J. Ment. Sci. **90:**256, 1944.
3. Ascher, E.: Criticism of the Concept of Neurotic Depression, Am. J. Psychiat. **108:**901, 1952.
4. Bellak, L.: Manic-Depressive Psychosis and Allied Conditions, New York, 1952, Grune & Stratton, Inc.
5. Garmony, G.: Depressive States: Their Aetiology and Treatment, Brit. M. J. **2:**341, 1958.
6. Rennie, T. A. C.: Prognosis in Manic-Depressive Psychoses, Am. J. Psychiat. **98:**801, 1942.
7. Kallman, F. J.: Heredity in Health and Mental Disorder, New York, 1953, W. W. Norton & Co., Inc.
8. Freud, S.: Mourning and Melancholia, *in* Collected Papers, Vol. 4, London, 1925, Hogarth Press, pp. 152-170.
9. Abraham, K.: Manic-Depressive States and the Pregenital Levels of the Libido, *in* Selected Papers, London, 1927, Hogarth Press, pp. 418-479.
10. Oltman, J. E., and Friedman, S.: The Role of Hostility in Affective Psychoses, J. Nerv. & Ment. Dis. **97:**170, 1943.
11. Rado, S.: Psychodynamics of Depression From the Etiologic Point of View, Psychosom. Med. **13:**51, 1951.
12. Greenacre, P. (ed.): Affective Disorders, Psychoanalytic Contributions to Their Study, New York, 1953, International Universities Press.
13. Kallman, F. J.: Genetic Principles in Manic-Depressive Psychosis, *in* Hoch, P., and Zubin, J.: Depression, New York, 1954, Grune & Stratton, Inc., pp. 1-24.
14. Pollock, H. M., Malzberg, B., and Fuller, R. G.: Heredity and Environmental Factors in the Causation of Manic-Depressive Psychosis and Dementia Praecox, Am. J. Psychiat. **96:**845, 1938.
15. Mayer-Gross, W., Slater, E., and Roth, M.: Clinical Psychiatry, Baltimore, 1955, Williams & Wilkins Co.
16. Diaz-Guerrero, R., Gottlieb, J. S., & Knott, J. R.: The Sleep of Patients With Manic-Depressive Psychosis, Depressed Type, Psychosom. Med. **8:**399, 1946.

17. Myerson, A.: The Sleeping and Waking Mechanisms: A Theory of Depressions and Their Treatment, J. Nerv. & Ment. Dis. **105**:698, 1947.
18. Kalinowsky, L. B., and Hoch, P. H.: Shock Treatment, New York, 1952, Grune & Stratton, Inc.
19. Stainbrook, E.: A Cross-Cultural Evaluation of Depressive Reactions, *in* Hoch, P., and Zubin, J.: Depression. New York, 1954, Grune & Stratton, Inc., pp. 39-50.
20. Malamud, W., Sands, S. L., and Malamud, I.: The Involutional Psychoses: A Socio-psychiatric Study, Psychosom. Med. **3**:410, 1941.
21. Moll, A. E.: Suicide: Psychopathology, Canad. M. A. J., **74**:104, 1956.
22. Gordon, J. E., O'Rouke, E., Richardson, F. L. W., Jr., and Lindemann, E.: The Biological and Social Sciences in an Epidemiology of Mental Disorders, Am. J. Med. Sci. **223**:316, 1952.
23. Plinen, J. F.: The Suicidal Risk: Its Diagnosis and Evaluation, New England J. Med. **245**:488, 1951.
24. Schneidman, E. S., and Farberow, N. L. (ed.): Clues to Suicide, New York, 1957, McGraw-Hill Book Co., Inc.
25. Gottlieb, J. S.: Use of Sodium Amytal and Benzedrine Sulfate in Symptomatic Treatment of Depressions, Dis. Nerv. System **10**:50, 1949.
26. de Verteuil, R. L., and Lehmann, A. E.: Therapeutic Trial of Iproniazid (Marsilid) in Depressed and Apathetic Patients, Canad. M. A. J., **78**:131, 1958.
27. Natenshon, A. L.: Clinical Evaluation of Ritalin, Dis. Nerv. System **17**:392, 1956.
28. Alexander, L.: Chemotherapy of Depression, J.A.M.A. **166**:1019, 1958.
29. Huston, P., and Locher, L. M.: Manic-Depressive Psychosis: Course When Treated and Untreated With Electric Shock, Arch. Neurol. & Psychiat. **60**:37, 1948.
30. Huston, P., and Locher, L. M.: Involutional Psychosis: Course When Untreated and When Treated With Electric Shock, Arch. Neurol. & Psychiat. **59**:385, 1948.
31. Levy, N. A., and Grinker, R. R.: Psychological Observation in Affective Psychoses Treated With Combined Convulsive Shock and Psychotherapy, J. Nerv. & Ment. Dis. **97**:623, 1943.

VOL
9
195

AMBULATORY SCHIZOPHRENIA

MARC H. HOLLENDER, M.D.,*
SYRACUSE, N. Y.

(Received for publication Dec. 1, 1958)

OL.
9
959

THE term "ambulatory" schizophrenia, as used in this article refers to non-hospitalized patients. Although these patients present many of the symptoms of schizophrenia, they do not manifest, for one reason or another, the more dramatic and more socially maladaptive features which usually result in institutionalization. It should be understood that included in this group are those persons who previously have been confined to a mental hospital as well as those who have never been, and possibly may never be, so confined.

I have purposely divided schizophrenia into only two groupings, ambulatory and hospitalized. There are many other possible subdivisions but, in my opinion, these are not relevant for our present purpose. It should be noted, too, that the term ambulatory schizophrenia, as used here, does not refer to a specific entity as originally proposed by Zilboorg (1941).[1]

HISTORICAL PERSPECTIVE

Kraepelin, who adopted the term dementia praecox (1896), had in mind a far-advanced or terminal stage of a chronic process. As Zilboorg[1] pointed out, it was comparable to diagnosing tuberculosis only after cavity formation or hemorrhage had occurred. Somewhat later (1911), Bleuler[2] proposed the term schizophrenia and he spoke of the "group of schizophrenias." His concept was that of a splitting of various aspects of the personality, such as ideation, affect, and behavior. In spite of much criticism, the labels dementia praecox and schizophrenia have persisted in popular usage and have for the most part referred to a severely disabling disorder. They have been especially favored by psychiatrists working in large mental hospitals, mainly state institutions. By and large, schizophrenia has been used by this group as though it meant approximately the same thing as dementia praecox. The reason for the continued popularity of this type of diagnosis is readily apparent when we recall the question with which psychiatrists in large mental hospitals have been primarily, although not exclusively, concerned. The question is: Should this person be removed from society and hospitalized or should he be discharged?

There remained, however, a large group of patients whose behavior was not grossly socially deviant and hence did not usually require hospitalization, but

*Professor and Chairman, Department of Psychiatry, State University of New York Upstate Medical Center, and Director, Syracuse Psychiatric Hospital.

in whom the clinical picture resembled that observed in schizophrenia. How were they to be classified? Bleuler[2] referred to them with the term latent schizophrenia. Others spoke of schizoid personalities and borderline states. Zilboorg[1] (1941) attempted to separate a group which he named, as previously stated, ambulatory schizophrenias. Hoch and Polatin[3] (1949) labeled another group pseudoneurotic schizophrenia.*

CLINICAL PICTURE

Bleuler[2] stated, "There is also a latent schizophrenia, and I am convinced that this is the most frequent form, although admittedly these people hardly ever come for treatment. . . . In this form we can see in *nuce* all the symptoms and all the combinations of symptoms which are present in the manifest types of the disease." Bleuler did not state *to whom* "these people hardly ever come for treatment."† Undoubtedly he had in mind the hospital psychiatrist. Generally speaking the statement is still correct today although psychiatric treatment for outpatients is much more widespread than it was three or four decades ago. Some patients who might be classified as ambulatory (latent or subclinical) schizophrenics, however, do seek out or are referred to the psychiatrist because of marital or other interpersonal problems, social difficulties, etc. Others come to the attention of lawyers and judges, as in the cases cited by Zilboorg[1]. The vast majority of those who are seen professionally, however, consult physicians other than psychiatrists. This is understandable because they are concerned about "somatic symptoms." They regard themselves as physically ill (in the sense that their bodily machinery is not functioning properly) rather than mentally ill.

In discussing the clinical picture four factors will be considered: (1) the nature of the somatic symptoms, (2) the manner in which these complaints are presented, (3) information about the patient's way of life, and (4) accessory mental symptoms.

Somatic Symptoms.—If the patient's initial complaint is of a burning sensation travelling over his body in waves or the feeling that an object is moving back and forth in his head, there is little question of the probable diagnosis. It is usually recognized that such symptoms are described in a textbook of psychiatry rather than in a textbook of medicine.

Very often, however, the patient's initial statement may be unremarkable. He may complain of pain, a feeling of fullness, or other forms of discomfort in one or another part of his body. In some instances, if not interrupted by questioning, he will spontaneously elaborate on his opening remark. In others, elaboration will follow a request for a more detailed account. In either instance it may then be learned that he believes that the pain in the stomach is due to a rotting or wasting away of that organ. Inquiry about the origin of the symptoms may be responded to with a statement that it is due to electricity which is circulating

*Although most of their patients were seen as outpatients many required periods of hospitalization.

†Those persons who were preoccupied with religious or sexual matters may have turned to a clergyman.

in the blood stream. One patient expressed the notion that mental stress resulted in pressure on her abdomen which irritated her uterus and produced a "tumor" (fibroid). Another patient had the idea that something—possibly a cancer—was "eating away" his stomach only on the days when he was constipated. He wandered from physician to physician with this complaint. (Careful gastrointestinal studies had proved negative.)

There are still other patients who struggle to conceal notions of which they cannot rid themselves but which they still recognize as unusual or peculiar in terms of their former way of viewing their body and its functioning. For example, a woman who had the idea that strange (and almost indescribable) insects were crawling in her ears spoke to her psychiatrist about them but complained to her otologist of pain and fullness (for which he treated her with tubal insufflations). It could, of course, be stated that she communicated with each specialist in an appropriate language or the conclusion might be reached that she had enough "observing capacity" (of the ego) intact to suppress the tactile hallucination when she spoke to the otologist.

The nature of the symptoms may be revealing, but even more revealing may be the explanation presented for them. The basic thinking may be clearly of such a type that it would be called prelogical, paralogical, or primary process. In other words, it would not follow the rules of Aristotelian logic which characterize reasoning in our culture.[4] The discrepancy is most striking when a highly educated person presents an explanation based on a concept of the body which is grossly at odds with his former intellectual comprehension of anatomy and physiology.

While the disturbance in the thought process may not be socially incapacitating (i.e., require hospitalization), it should be regarded as the hallmark of a schizophrenic process. Although such thinking (or reasoning) is not limited to the exposition of symptoms, it is in this sphere that it is most apt to be noted by the physician. Its absence, however, does not exclude the diagnosis of schizophrenia.

Manner of Presentation.—While some patients, as just described, relate a bizarre story, others are very vague. They answer questions but in such a way that little information, of the type sought, is imparted. They somehow ramble on in a relevant but uninformative way leaving the physician with the feeling that what he has obtained is without substance. It is like a mirage.

If an experienced interviewer spends 20 or 30 minutes taking a history at the end of which time he wonders what he has, he should regard this as suggestive of a schizophrenic process and look for other evidence.

In some instances the physician has the impression that the feeling of contact which usually exists between a patient and himself is somehow altered. It is almost as though a glass partition interfered. Technically, it might be stated that the patient's affect is blunted. The patient's tone of voice may be monotonous or colorless. He may relate major issues and inconsequential details with no apparent sorting.

Jenkins[5] had this to say about the manner of presentation: "The quality of schizoid behavior in interpersonal relations is much more easily sensed than

described. Its essence seems to be a lack of attention to and of reactivity to the nonverbal cues to feeling and thinking for which one normally watches. In social relations the normally reacting person is not only listening to words; he watches expression, movement, gesture. He picks up cues from intonation, stress, action, choice of words. He is alert to reversals of meaning implied by a tone of sarcasm or irony. He is alive to many impressions, the sources of which he could describe or analyze only very imperfectly, if at all.

"The schizoid manner is recognized by the normal person and is described in feeling language, typically without clear perception of what brings about the impression. 'He seemed to be in another world.' 'You felt he might as well have been on Mars.' 'It was as though we were talking through a glass wall.' 'Somehow you felt he wasn't really there.' 'He didn't seem to feel I existed.' "

The paranoid patient may tip his hand in a number of ways. He may question the meaning of things which usually would go unnoticed. For example, he may wonder why the physician has a dictating machine on his desk. He is apt to become somewhat petulant in response to a question which is relatively innocuous and ask, "How would you feel about it?" Retorts of this type, when repeated several times, should be noted as suggestive of a paranoid orientation. Furtive glances should be regarded in a similar manner. In this category, too, is the tendency to stress one's importance, especially if relatively insignificant accomplishments are mustered to substantiate this note of megalomania.

Way of Life.—There is no set or specific pattern. At one extreme is the "skid row bum" or the hermit while at the other is the steady plodder engaged in relatively unchanging, menial tasks. A common story is that of the seclusive person who is called peculiar or eccentric. Another, however, is that of the person who does well in social situations provided his contact with people remains superficial.

In describing the way of life of the schizophenic patient, Zilboorg[1] wrote: "Stated briefly, the psychological picture of a schizophrenia may not present any striking appearance at all. The individual may appear normal in all respects, even suave and almost worldly; he may sometimes give the impression of a warm personality. On occasions, admittedly rare, he may even have a position and keep it, doing not very well and not very badly, but keeping it. Intellectually he may not appear brilliant, but he will be adequate, almost always with a cultural bent. He thinks more than he talks, and a tendency to be taciturn is most frequent—a tendency often mistaken for a depressive state. This tendency should not be overlooked. It is the first sign of autistic contemplation, or, as Bleuler preferred to term it later, de-reistic thinking, the outstanding feature of any schizophrenia."

Only when some "decompensation" occurs is there an intensification in the process of withdrawal from people, seemingly purposeless wandering from one interest or job to another, decline in work performance, and a markedly increased absorption in or a preccupation with the body.

The paranoid patient is apt to have difficulties getting along with people. Since he pictures situations in terms of internally-determined notions, he may miss the social nuances and seem "peculiar" or "queer." There may be a tendency to catnap during the day and prowl about at night.

VOL 9 195

Accessory Mental Symptoms.—The striking symptoms of the advanced stages of schizophrenia, hallucinations and delusions, are usually absent. When present, they may be concealed except in a few "appropriate" situations. The hallucinations may lack compelling force and the delusions may be well circumscribed. For example, a man carried a 10-page single-spaced letter, typed on both sides, telling how his divorced wife had wronged him and asking for help in obtaining redress. The letter was addressed to the President of the United States. When two lawyers refused to take his case, he filed the letters away and spoke no more of the matter. He continued to live and work in his life-long semiseclusive way.

Depersonalization is occasionally encountered. For example, a young woman spoke of "funny spells" in which her head would feel as though it were swelling and becoming as big as the ocean and that she was not herself. These spells would cease if she ran out and talked to a friend. Parenthetically, it is significant to note that she was reluctant to speak of her experience because it was difficult to describe and she was afraid that no one would be able to understand it.

OL.
9
959

Pseudointellectuality, expressed in language and thought, is occasionally encountered. It is reminiscent of the adolescent's effort to seem sophisticated and profound. A young man who after two rhinoplasties was seeking a third superficially appeared to be an intellectual. It soon became apparent that he went out of his way to use large words and that he often was a shade or more off the meaning he intended.

Thinking disturbances are common. Some are subtle and apt to go unnoticed. Others are gross. The following is a type of thinking in which the cart is placed before the horse. The patient stated: "I went to see Dr. B. after I came back from my class reunion. I do not know why I went to see him. I must not have been feeling well, isn't that so? Otherwise I would not have gone to see him." This type of reasoning, which makes one think of an inebriate, is encountered in patients with organic brain disease as well as schizophrenia. Both disorders show a concreteness or a lack of ability to abstract or conceptualize. The schizophrenic, however, is more apt to personalize and vary his responses.

EXPLANATION OF BODILY FEELINGS

In a recent article, Szasz[6] discussed the psychology of bodily feelings in schizophrenia. According to the thesis he proposed, a preoccupation with the body (hypochondriasis or somatic delusion) occurs when there is difficulty in relating to people. At such a time the ego takes the body as the only remaining object to which it can relate with more or less safety. There may be apprehension lest this object, too, be lost. The conviction of bodily disease—and it is a conviction rather than a fear—reflects the ego's need for permanent contact with the body (as an object). This can be achieved only with the aid of noisy ("painful") symptoms. The preoccupation with the part has this meaning: "I might lose this body part" and "I feel this part; therefore, it can't be lost."*

*The content of the symptom may also have other (symbolic) meanings.

In the ambulatory schizophrenic patient, the capacity or ability to relate to or to feel close to other persons is seriously affected. This is not a static state but one which is influenced by a number of internal and external factors. The latter would include the nature of the medical situation existing between physician and patient. At times, the degree of the patient's withdrawal becomes more marked. It is then that the retreat to the body as an object is intensified. This preoccupation, in turn, is apt to mobilize the patient to seek medical care. The treatment received may be a major determinant in deciding whether the process is reversed, remains more or less stationary, or becomes even more serious. It should be borne in mind that the preoccupation with the body as an object is less disruptive than would be a state of relative objectlessness, such as occurs in the so-called catatonic schizophrenia. Indeed, the ability to relate to the body may be one of the important factors accounting for the patient's "ambulatory" or nonhospitalized status.

Szasz[6] also suggested an explanation for the bizarre nature of the symptomatology. He stated that the ego of the patient regresses to the point that it functions in a more primitive fashion (prelogical thinking or primary process thinking). Moreover, the body as an object as experienced by the patient is not the body as it is viewed by an adult with scientific knowledge but the body as viewed by a primitive ego (i.e., somewhat as a child would regard his body).

VOL 9 195

CASE REPORTS

The patient, a 49-year-old large, obese man, was very slovenly in his appearance. He quickly slumped into a chair and during the discussion he periodically covered the right side of his face with his hand. He seldom looked at the physician.

He stated that he had sustained a brain hemorrhage. Dr. N. had become furious with him and struck him on the forehead when he had attempted to pull out a nasal catheter (for oxygen) which was being inserted. (This story was subsequently verified.) He believed that the blow caused a brain hemorrhage.

His illness began 30 years before. This was brought out little by little as the patient returned to the theme of the brain hemorrhage in a broken-record fashion. Thirty years ago he had the notion that he had swallowed a bone and that it had lodged in his stomach. He went the rounds of physicians but repeated x-rays failed to reveal a bone. After that he developed "indigestion and a rapid heart." A year and a half ago he began to have "trouble getting air." He believed that something had closed down in his throat. He saw several physicians, and he was bronchoscoped on two occasions by two different physicians. He then complained that the second bronchoscopy had been performed in a rough manner and that it had injured his throat. He again made the rounds. His symptoms subsided for 6 months but returned, and with it the visits to physicians, approximately 3 months before the present complaint of brain hemorrhage.

When he had symptoms, he was able to work only for brief periods of time in the second-hand furniture store which he had owned for 20 years. He had one living relative, no friends, and only a few acquaintances. There were times when he was able to work and take a slight interest in the world around him, but these were interspersed between long periods when he focused almost exclusively on his body.

The following case cited by Miller[7] also illustrates many of the points which have been made:

An unsmiling, humorless, 46-year-old mechanic was seen in the University Hospitals on referral. The patient told his story in an indifferent fashion, rarely changing his tone of voice, and stated that he had cancer. He complained of swollen glands in his axilla and of pain in the jaw,

and stated that he felt sure the bones in his face were "deteriorating." He had taken a leave of absence from his job in order to "find out the truth." Discussion with the patient revealed that he had developed his symptoms in the face of long continuing, growing pressure from his fiancée to end their engagement with marriage. In the face of pressure to undertake responsibility for which he felt totally inadequate, the patient had become increasingly tense, developed headaches in the back of the neck, and discovered normal-sized lymph glands which he felt certain were cancerous. He avoided his fiancée, worked with less eagerness on his job, and spent more and more time worrying about the possibility of cancer. Subsequent discussion with the patient about his feelings concerning the impending marriage led to an indefinite postponement of the marriage, and the patient returned to work.

WHAT CHARACTERIZES THE AMBULATORY PATIENT?

This question might also be worded: "What is it that distinguishes hospitalized from nonhospitalized patients?" It might be argued that there are two different illnesses. Ambulatory schizophrenia then would be like the common cold, whereas schizophrenia would be like acute lobar pneumonia. While this is conceivable, there is little substantiating evidence.

It might also be argued that social factors determine which patient will be hospitalized and which will remain at home. Certainly, to some extent this is true. It is well known that at times families will convert a home into a hospital. In particular settings, behavior which might elsewhere be regarded as deviant goes unnoticed. This is illustrated by the case of a man who left the Cook County Hospital clad only in a bed shirt and a blanket. When he was returned to the hospital by the police more than a day later, the question was raised as to why he had not been noticed sooner. The answer was that he had been in the bars and flop houses on "skid row" where he attracted almost no attention.

Returning now to a theoretic conceptualization, it might be argued that the ambulatory or nonhospitalized form of schizophrenia is simply a mild stage of a process which is often seen in more severe forms. To use Zilboorg's analogy, the hospitalized form might be likened to the stage of tuberculosis in which there is hemorrhage or cavity formation. Thus we would have a continuum from the mildest to the most malignant form of schizophrenia. The stage at which hospitalization would be recommended would then depend on cultural, economic, social, and other factors.

Those psychiatrists who believe that schizophrenia represents a regression would speak of regression of varying degrees. On the other hand, those who regard schizophrenia as due to a disintegration of the ego would refer to it in terms of the degree of ego disruption. They might further conceptualize the process in terms of the preservation of observing (or intact) ego. In other words, when the patient retains the capacity to observe his feelings, thoughts, and impulses much as an outsider would, he is apt to remain functioning in society. The capacity to observe most often, but not always, is accompanied by the power to control and regulate behavior. In a previous article,[8] an exception was cited. This patient turned himself over to the police to get them to help him struggle against the voices which told him to kill himself.

The process might now be pictured in the following way: The patient, to a considerable extent, experiences himself and others in terms of a "primitive"

(prelogical or primary process) form of thinking. By everyday standards (and perhaps by the patient's previous standard), his ideas seem strange, illogical, or even bizarre. A part of the ego (the observing as contrasted with the participating portion) may retain sufficient critical judgment, however, to contain these notions or at least to permit effective functioning in a society grounded in Aristotelian logic. According to such a scheme a continuum might be drawn from nonschizophrenia (so-called "normal" or "neurotic" states) through ambulatory schizophrenia to schizophrenia proper.

This scheme does not deal with the question, "Is schizophrenia a disease?" Nor does it deal with the question, "Does schizophrenia result from problems in living or from biologic factors?" Obviously, it would be compatible with any answer which might ultimately be found to these questions.

TREATMENT

If the patient presents himself with complaints referable to his body, these must be investigated in the usual way. It is obvious that a bodily disorder cannot be excluded on the basis of a history which strongly suggests psychogenic factors. Very elaborate tests and examinations, not specifically indicated but considered simply for the sake of completeness, however, are not recommended. The undesirable result of such procedures is illustrated in the first case which was cited.

If the study fails to reveal a bodily disorder, the patient should not be summarily dismissed with the statement that nothing is the matter or that it is all in his head. Some patients derive much from a supportive approach in which the physician evinces a willingness to listen and to be helpful. This need *not* be extremely time-consuming.

Many patients, who fit into the group suffering from an ambulatory schizophrenic process, will not accept referral to a psychiatrist. The more convinced the patient is that he has a bodily disorder, the less likely will he be to accept a statement that he is in need of psychologic help. There are some patients, however, who will accept a referral to a psychiatrist. It is important that the recommendation in these instances be presented in such a way that the patient departs feeling that he is going to something rather than being "tossed out" or rejected.

For the patient who tends to include others in his delusional systems, it is essential that the physician define his role as a doctor and a helper.[9] It may be necessary to reiterate such statements periodically.

Appointments may be spaced at weekly to monthly intervals. These appointments, even though brief, may be much more meaningful to the patient that the physician realizes. Retrospectively, the patient may make this clear. For example, a patient who had been seen at first on a weekly basis and later "spaced and spanned" until she came in only when she called for an appointment, spelled out the meaning of her visits after several years. In addition to bodily complaints, she had ideas of reference, believing that critical remarks were being made about her. These had left soon after she began her treatment but

VOL. 9 1959

recurred when a sister became a nun. She then explained that this brought her under the sway of her stern (practically unbearable) conscience. At this point she again had the notion that people were making critical statements about her. This was due to the projection of her conscience onto others. She had to see the doctor to remind herself of his attitude about things and especially about her. In a sense she substituted his standard for her own very oppressive one. When her old standard was mobilized at the time her sister became a nun, it was not enough to think of how the doctor would view things. She had to see him to effectively combat her superego. As she put it, "I needed a refill."

The generalization which is intended is *not* that this is the way in which therapy always works with patients who might be classified under the label ambulatory schizophrenia. The doctor-patient relationship undoubtedly exerts its effect in a wide variety of ways just as people have a wide variety of personal problems. The generalization intended is that the transaction within the doctor-patient relationship may be much more meaningful, and hence significant, than the physician is aware at the time. In some instances, as in the one cited, the patient, after a period of years, may make it clear what the process was and what it meant to her. A human relationship which provides support, friendliness, and a willingness to help should not be written off too lightly. Especially is this so if one person in the relationship also carries the prestige which belongs to a practitioner of medicine.

A case which illustrates the importance of the nature of doctor-patient relationship was presented by Miller[7]: "A 40-year-old farm wife, well known in the community as a very strange, overly sensitive and eccentric person, was treated by the general practitioner once a month for hot flashes and intense, 'quivering' feelings over a period of seven years. The treatment consisted of friendly interest, the maintenance of a degree of professional distance, and the prescription of various mild medicaments from time to time. The physician died and his successor in the community was visited by the patient. After talking with her about the complaints the physician became aware that her judgment was defective and that she was very eccentric, and he insisted that the patient bring her husband for consultation. This was held, and the physician advised the husband that his wife was an ambulatory schizophrenic. The patient was very incensed at this interview (which was described in detail to her by her husband), and she began to feel that she was being plotted against by the doctor, later accusing both her husband and the physician of planning her death with poison."

As a rule, it is necessary that the usual framework of medicine in which the goal is cure be put aside. The disorder cannot be viewed like an infectious disease in which an antibiotic will bring the process to a more or less predictably speedy termination. The goal here may be to keep the person functioning in society. At times it may *not* even be to relieve symptoms but rather to help the person live with his symptoms.

Since ambulatory schizophrenic patients have very tenuous relations with others, they can ill-afford any change in the doctor-patient relationship which they interpret as a rebuff or a rejection. It is therefore advisable to gradually,

rather than suddenly, change the time intervals between appointments. If the doctor is to be away for a prolonged period, he should inform the patient in advance and provide a substitute who is well informed of the situation.

Miller[7] has stressed the importance of a conservative approach with this group of patients. He suggested that one of the physician's major tools, in addition to his interest, willingness to listen, his reassuring manner, and the application of supportive psychotherapy, is his "refusal to be frightened or hurried into some kind of 'do something' treatment." As with the hemophiliac, the patient and others may exert great pressure on the physician to do something with the idea that some dramatic act will bring relief. This was so in the first case which was cited. It is a truism, but one that bears repetition, that action may cause harm whereas relative (or apparent) inactivity may be the treatment of choice.

VOL. 9 195

SUMMARY

Ambulatory schizophrenia, as used in this article, refers to nonhospitalized patients. The vast majority seen professionally consult physicians other than psychiatrists. This is so because they are concerned about "somatic symptoms." They regard themselves as physically ill (in the sense that their bodily machinery is not functioning properly) rather than mentally ill.

The nature of the symptoms may be bizarre. Even more revealing may be the explanation given for them. The manner of presentation, the way of life, and accessory mental symptoms are of value in making the diagnosis.

As an explanation of the bodily feelings, Szasz[6] suggested that the patient who has difficulty in relating to people takes his body as the only object to which he can relate with more or less safety. As a result of regression, the body he relates to is experienced not as it is viewed by an adult with scientific knowledge but as viewed by a primitive ego (i.e., somewhat as a child would regard his body).

Two case illustrations were presented. Following this the question was posed: "What characterizes the ambulatory patient?" It might be argued that the nonhospitalized form of schizophrenia is simply a mild stage of a process which is often seen in more severe forms. The stage at which hospitalization is recommended depends on cultural, economic, social, and other factors. From a psychologic standpoint the degree of preservation of observing ego, which most often is accompanied by the power to control and regulate behavior, is crucial. The scheme suggested does not deal with the question, "Is schizophrenia a disease?" Nor does it deal with the question, "Does schizophrenia result from problems in living or from biologic factors?" These are left open.

Since the patient has complaints referable to the body, these must be investigated in the usual way. Elaborate tests and examination, which are not specifically indicated, however, should be avoided. The undesirable result of such procedures was illustrated in a case history.

Most patients may derive benefit from treatment provided by the general practitioner or specialist. As Miller[7] suggested, the physician's major tools are his interest, his willingness to listen, his reassuring manner, the application of supportive psychotherapy, and his refusal to be frightened or hurried into some

kind of "do something" treatment. The importance of the physician's relationship to his patient should not be written off lightly. At times, however, its specific meaning becomes apparent only after years have elapsed.

REFERENCES

1. Zilboorg, G.: Ambulatory Schizophrenias, Psychiatry **4**:149, 1941.
2. Bleuler, E.: Dementia Praecox or The Group of Schizophrenias, translated by J. Zinkin, New York, 1950, International Universities Press.
3. Hoch, P., and Polatin, P.: Pseudoneurotic Forms of Schizophrenia, Psychiatric Quart. **23**:248, 1949.
4. Arieti, S.: Interpretation of Schizophrenia, New York, 1955, Robert Brunner.
5. Jenkins, R. L.: Nature of the Schizophrenic Process, Arch. Neurol. & Psychiat. **64**:243, 1950.
6. Szasz, T. S.: The Psychology of Bodily Feelings in Schizophrenia, Psychosom. Med. **19**:11, 1957.
7. Miller, M. H.: The Borderline Psychiatric Patient: The Importance of Diagnosis in Medical and Surgical Practice, Ann. Int. Med. **46**:736, 1957.
8. Hollender, M. H., and Boszormenyi-Nagy, I.: Hallucination as an Ego Experience, A.M.A. Arch. Neurol. & Psychiat. **80**:93, 1958.
9. Boverman, M.: Some Notes on the Psychotherapy of Delusional Patients, Psychiatry **16**:139, 1953.

OL.
9
959

DELIRIUM, A SYNDROME OF CEREBRAL INSUFFICIENCY

GEORGE L. ENGEL, M.D., AND JOHN ROMANO, M.D.,
ROCHESTER, N. Y.

From the Departments of Psychiatry and Medicine, University of Rochester, School of Medicine and Dentistry, Rochester, N. Y.

(Received for publication Dec. 1, 1958)

VOL
9
195

IT IS a curious fact that while most physicians have a strong bias toward an organic etiology of mental disturbances, at the same time they seem to have little interest in and, indeed, often completely overlook delirium, the one mental disorder presently known to be based on derangement of cerebral metabolism. This state of affairs persists in spite of the fact that many seriously ill hospitalized patients experience some degree of delirium during the course of their illness. The explanation for this state of affairs is not difficult to find. In the first place, the deficiencies in the education of many physicians ill equip them to recognize any but the most flagrant examples of delirium, much less to differentiate it from other types of psychologic disturbance ordinarily encountered among medically ill patients. Most delirious patients are considered either dull, stupid, ignorant, or uncooperative. It is only when their behavior and content of thought are grossly deviant that an abnormal mental state is recognized, although it is not always correctly identified as delirium. Only the latter type of patient, often a management problem on a medical or surgical service, is likely to result in a psychiatric consultation. The psychiatrist, on the other hand, is likely to see only the more disturbed delirous patients since he is generally called in consultation only when someone is disturbed by the patient's behavior. Hence, not only may his picture of delirium be a restricted one, but also, seeing the patient in the home territory of the "organic" specialists, he is less likely or able to pursue an understanding of the underlying physiologic derangements, which are generally conceived to be the proper domain of the internist. Unhappily, the unfortunate patient's malfunctioning brain rests in limbo, an object of attention and interest neither to the medical man nor to the psychiatrist.

This unsatisfactory state of affairs is not helped at all by how the matter is handled in either the medical or the psychiatric texts. The student who hopes to find some clarification of these matters in modern textbooks will gain only confusion. The more modern textbooks of psychiatry follow the official system of classification adopted by the American Psychiatric Association, whereby delirium is correctly included among the disorders caused by or associated with impairment of brain tissue function.[1,2] But these are then subdivided into acute

This work was supported in part by a grant from the Foundations Fund for Research in Psychiatry.

and chronic brain disorders, which are classified in etiologic terms, such as disorders due to or associated with infection, intoxication, trauma, circulatory disturbance, etc., as if each represented a clinical entity. The unwary student is plunged directly into a consideration of such supposed specific entities with either no or only a very sketchy consideration of the basic processes underlying and characterizing delirium. There is little or no indication of the frequency of this syndrome or consideration of the various ways in which brain function may become disordered in relationship to the physiologic derangements characterizing organic illness. By inference the reader is led all too easily to associate delirum with certain specific entities, e.g., meningococcal meningitis, chorea, encephalitis, bromides, alcohol, head trauma, myxedema, and so on, and to overlook the fact that in most instances multiple factors are operating, sometimes only indirectly related to the primary diagnosis.

OL.
9
959

The textbooks of medicine are even more cavalier in their treatment of this subject. In some it is mentioned only in passing as a complication of certain illnesses, as in yellow fever or typhoid. Perhaps the best discussion is found in Harrison's work,[3] but this is somewhat misleading because of the author's bias for the alcoholic patient as depicting most perfectly the picture of delirium. Further, it is surprisingly lacking in any consideration of the physiologic and metabolic factors.

The problem of delirium is far from an academic one. Not only does the presence of delirium often complicate and render more difficult the treatment of a serious illness, but also it carries the serious possibility of permanent irreversible brain damage. With increasing life expectancy and with improved survival through the influence of surgery and antibiotics, we are now beginning to see an increasing incidence of so-called senile and arteriosclerotic dementias. Do we know how often such developments are initiated during delirious episodes experienced in the course of serious illness?[4] Bedford[5,6] has recently shown that dementia not infrequently develops in old people following operations under general anesthesia and after shock in the course of serious illness. The physician who is greatly concerned to protect the functional integrity of the heart, liver, and kidneys of his patient has not yet learned to have similar regard for the functional integrity of the brain. This is a serious and, perhaps, tragic omission. It is our hope that this paper will stimulate among physicians in general, and among clinical investigators in particular, more frequent recognition of and greater interest in the syndrome of delirium.

DEFINITION

Before attempting to define delirium in clinical terms, we wish to establish firmly what we believe to constitute the basis for this syndrome. In the title the term "syndrome of cerebral insufficiency" is used. This draws attention to the basic etiology of all delirium and couches it in terms analogous to the more familiar concepts of renal insufficiency, hepatic insufficiency, cardiac insufficiency, etc. As with the more familiar types of organ insufficiency, this refers to what evolves when the function of the organ as a whole is interfered with, for whatever

reason. Whether applied to the liver, kidney, or brain, this can be reduced to two basic underlying processes, namely, the failure of metabolic processes to maintain the function of the organ or the loss through death of enough functioning units (cells) to render the function of the organ insufficient. It will be recognized that the first situation may evolve into the second and that except in situations of rapid and massive process, both must often co-exist. Further, the first situation may have a high potentiality of reversibility, a possibility not likely when there is cell death unless the organ has the capacity for regeneration of its functional units, which the brain does not. With respect to the brain, this also corresponds to the clinical distinction between delirium and dementia. Delirium refers to the more reversible disorder and dementia to the irreversible disorder. While such a distinction has some pragmatic value, it would be a mistake at this time in our knowledge to regard these states as any more than different degrees or stages of similar processes. This is especially so since clinically many patients manifest a lower threshold to delirium in response to some general physiologic derangement by virtue of having already suffered some loss of brain substance (i.e., dementia), although the latter may have been so well compensated as to have been clinically inapparent. Sometimes the concept of acuteness is associated with delirium and chronicity with dementia—but this is not correct. Some types of delirium, such as those associated with pernicious anemia and myxedema, may develop very slowly and last for weeks or months and yet be largely reversible when appropriate therapy is administered.[34,35] Similarly, an irreversible defect, a dementia, may develop abruptly, as after a severe head injury, prolonged anoxia, or carbon monoxide intoxication. If the cerebral insufficiency develops very abruptly, in a matter of a few seconds, and lasts only seconds, the resulting disorder is syncope, but again we should appreciate that the basic process is essentially the same as that in delirium.[7] Indeed, we know that if the unconsciousness of syncope persists beyond 30 to 60 seconds, the victim usually will pass through a period of delirium before complete recovery is achieved, whereas with the longer lasting faints, permanent damage and dementia may result. In other words, clinical convention leads us to delineate a number of syndromes associated with cerebral insufficiency, and it is well for the physician to appreciate the common denominator shared by delirium and these other syndromes. In all instances, the factors maintaining the metabolism, the functional integrity, and the life of the cell are of primary importance.

THE METABOLISM OF MAMMALIAN BRAIN

Further progress in the understanding of the etiology, treatment, and prevention of delirium is linked irrevocably with our advancing knowledge of cerebral metabolism. For a long time progress in this field has been slow and uncertain, and few have seriously interested themselves in it. The last decade has, however, seen a great surge of interest and progress, as indicated by the founding of the *Journal of Neurochemistry* in 1956 and the holding of two International Neurochemical Symposia. We will make no attempt even to summarize the important recent advances but would refer the interested reader to the two volumes con-

taining the proceedings of the two international conferences and to a recent review.[8-10]

It is misleading to speak of brain metabolism in any unitary fashion since it is becoming clear that not only may there be major differences in the metabolism of the neuron or nerve pathways compared to the supporting structures, but also that there are significant differences in the metabolic activity of the various regions of the brain. Lowry[11] has developed an elegant technique which makes feasible the measurement of enzyme concentrations in single cell bodies and related structures and has demonstrated significant differences in the activities of 9 enzymes in cell bodies and related structures taken from 6 different areas of the brain.

There is need for caution in accepting too easily the classic generalization that "brain" derives its energy entirely from aerobic processes and that glucose is the only substrate. While clinical observation and in vivo studies leave no question that both oxygen and glucose are essential to maintain higher nervous (and mental) activity, the exclusive emphasis on this fact has tended to obscure other biochemical derangements that may take place in spite of adequate oxygen and glucose supplies. Even this dependence on aerobic processes to maintain the normal state of the brain may vary. Shapot,[12] for example, has shown that the susceptibility of the brain to hypoxia varies with the level of functional activity of the central nervous system. He claims that resistance to hypoxia is increased by inhibition and falls after severe excitation. If verified, this phenomenon is one which could have very great clinical importance in respect to the susceptibility to develop delirium. It is a common clinical observation that an organic syndrome (usually dementia) may develop rapidly after a period of psychologic stress. Shapot has also pointed out that the energy produced by the cell is utilized in two ways, namely, for "structural metabolism" (renewal of cell structures) and for specialized functional metabolism. Obviously such a distinction between structure and function is only a relative one, involving as it does relative rates of chemical reaction underlying various processes. Nonetheless this does introduce the possibility of competition between these two kinds of metabolism, as when there is an excessive need or an insufficient supply involving one or another system. In another study, Shapot demonstrated that, when rats were teased to exhaustion, methionine incorporation into brain proteins was much lower than in control animals, whereas, if the exhausted rats were left alone to sleep for 30 minutes, the rate of methionine incorporation was greatly increased as compared with the controls. He interprets these findings to mean that, since during the first minutes of sleep following intense excitation the cerebral respiration still proceeds at a high level and the energy requirements for functional activity are presumably minimal, this energy must therefore be for the requirements of the structural metabolism, which then restores the functional capacity of the nerve cells. Thereafter respiration again falls as the animal continues to sleep.

Other studies indicate that the amino acid and protein metabolism of brain is much more active than heretofore had been supposed.[13,14] Strecker[15] brings support for the idea that the glutamic acid-glutamine system can act as a homeo-

static maintenance mechanism controlling carbohydrate metabolism and the many metabolic systems which are interdependent with carbohydrate metabolism. Sporn, Dingman and Defalco[16] have recently demonstrated a rapid rate of uptake of intracisternally injected proline by brain protein and the conversion by brain of this proline to glutamic acid, aspartic acid, alanine, gamma-aminobutyric acid, ornithine, and arginine.

The alleged toxic effects of ammonia on the function of the central nervous system, with its suggested relationship to the delirium of liver disease, focuses attention on the processes of ammonia formation in the brain and the mechanisms of its removal, for which the glutamic acid-glutamine system is regarded as the most likely candidate. Weil-Malherbe[17] observed that brain cortex slices form ammonia at a farily steady rate in a glucose-free medium. This finding is of particular interest in the light of Geiger's observation[18] that, if cerebral blood flow is increased two- or threefold over normal during a glucose-free perfusion lasting an hour or longer, the electrical activity (EEG) is maintained, reflexes can be elicited, and oxygen consumption of the brain is only slightly below that obtained with glucose. Geiger and his co-workers showed that during glucose-free perfusion structural components are used up by the brain while the preparation still maintains its physiologic functions. These experiments indicate that, given a fast enough cerebral blood flow, the brain can survive and maintain its excitability in the absence of glucose for over an hour by using some of its structural components. Geiger believes this can be explained on the assumption that the breakdown products resulting from noncarbohydrate metabolism in the brain are toxic, but that by speeding up blood flow these breakdown products of noncarbohydrate metabolism are quickly eliminated. This worker also showed that the brain ceases to oxidize glucose, accumulates a high concentration of lactic acid, and loses its physiologic activity in perfusion experiments after about 60 minutes of perfusion without the liver. The insertion of an isolated liver into the perfusion or the addition of fresh liver extract restores cerebral glucose oxidation. A depletion of the galactolipid and phospholipid content of the brain is observed during perfusion in the absence of the liver, but the addition of cytidin and uridin maintains glucose oxidation even in the absence of the liver and prevents the depletion of liquids.

These are but a few of the recent discoveries which invite the clinical investigator to turn his attention to the exploration of similar phenomena in the brain of the patient with delirium.

VOL. 9 1959

THE METABOLISM OF THE HUMAN BRAIN

The problem of investigating the metabolism of the intact human brain presents major difficulties. This subject is well reviewed in a recent paper by Kety[19] whose nitrous oxide technique has been the most extensively used method of studying the general metabolism of the brain in vivo. While it has yielded useful results, particularly in respect to the quantity and dynamics of cerebral blood flow, on the whole it has been of limited value in advancing our knowledge of cerebral metabolism in delirium. Some of the reasons for these limitations have been pointed out by Kety. For one thing, since it measures only the total

oxygen uptake of the total brain, it gives no information as to how or even where such energy is being utilized, a point already emphasized when we drew attention to the contrast between so-called structural metabolism and functional metabolism. Thus, it is not surprising that coma is the only situation in which marked depression in oxygen uptake is consistently found. With the lesser degrees of derangement characteristic of delirium, results have been inconsistent. This, we suspect, is more a reflection of a poor design of these studies than a deficiency of the blood flow method itself. The technique usually has been to select for cerebral metabolism studies patients with established diagnoses, such as congestive heart failure, pernicious anemia, hypothyroidism, hypertension, etc., but then to make only a crude evaluation of mental status, often with little understanding of what psychologic and behavioral characteristics could be expected to correlate with reduced cerebral metabolism. In some case reports it seems improbable that the patient was delirious and in others it is impossible to tell from the published material. Further, only a few investigators have made serial observations on the same patients, either during spontaneous recovery or during the application of specific measures which might be expected in any particular instance to improve cerebral metabolism. And in some of the instances in which this was done, the techniques used to evaluate the change in mental status were so inadequate as to limit greatly the significance of the results. In spite of these deficiencies, there is a quite suggestive correlation between the degree of decrease in cerebral oxygen consumption and the mental state in hypoglycemia, diabetes, pernicious anemia, and hypothyroidism.[20-22] It is our opinion that when more attention is paid to identifying and evaluating those aspects of mental function which are characteristic of delirium and when each patient is used as his own control, a much more consistent correlation between cerebral oxygen uptake and mental status will be established in delirium. Perhaps the main exceptions might be those situations in which increased oxygen uptake is not maintaining the function of the brain but some other processes, such as acute inflammatory reactions in encephalitis.

THE ELECTROENCEPHALOGRAM AS AN INDEX OF CEREBRAL INSUFFICIENCY

At present the electroencephalogram, as an index of functional metabolism, is by far the most sensitive and reliable indicator of cerebral insufficiency, as we have defined it. Indeed, in this respect, the electroencephalogram reflects cerebral insufficiency as reliably, if not more reliably, than the electrocardiogram reflects myocardial insufficiency. In spite of the considerable evidence that has accumulated over the past 15 years, this fact remains little known and even less used, either by investigators or by clinicians. Victor and Adams[3] state, "The value of the electroencephalogram in studying delirium has largely been limited by the difficulty of obtaining records free of movement artifact. There is some evidence that the EEG in severe delirium shows non-focal slow activity in the range of 5-7 per second, a state which rapidly returns to normal as the delirium clears. In milder degrees of delirium there is usually no abnormality of the EEG." As we shall show, this statement is grossly inaccurate.

Actually, Gerard[23] demonstrated more than 20 years ago that EEG frequency could be expected to parallel changes in the metabolism of the cell, increasing with rise in metabolism and decreasing with fall in metabolism. Polarographic studies demonstrate a very close relationship in time between local reduction of oxygen availability as measured by the electropolarograph and change in the EEG; the latter usually occurs 6 to 8 seconds after the local oxygen tension begins to fall.[24] Both experimental and clinical observations bear this out. For many years it has been known that both hypoxia and hypoglycemia produce slowing of the EEG.[25] These are two physiologic conditions under which it is well established that the metabolism of the brain cannot be successfully supported. With the application of a quantitative method of frequency analysis of EEG, it has been possible to demonstrate significant slowing of the EEG at ambient air pressures equivalent to 12,000 feet and at blood sugar levels below 60 mg. per 100 c.c., changes which increase progressively as oxygen saturation and blood sugar levels, respectively, are further reduced.[26,27] Indeed, changes in EEG frequency can be demonstrated before any change in psychologic performance becomes demonstrable and well before any change in total cerebral oxygen uptake can be measured by the Schmidt-Kety method. Similar results have been obtained using alcohol,[28] carbon monoxide,[29] and Freon (F12).[30] In all these experimental studies, the fundamental fact has been demonstrated that the psychologic changes correlating most precisely with the slowing of EEG frequency were those that had to do with awareness, attention, memory, and comprehension—that is, the cognitive functions. Observing on different occasions the effects of hypoxia, hypoglycemia, and alcohol on the same subjects, we have demonstrated that, for comparable degrees of slowing of the EEG, the degree of disturbance in cognition, as assayed by clinical tests, was essentially the same under each of these three circumstances.[27] On the other hand, the individual subjects differed appreciably as to their behavior, content of thought, and expression of affect, depending on whether they were under the influence of hypoxia, hypoglycemia, or alcohol. The next section will take up the more detailed delineation of these psychologic characteristics of delirium.

Such studies indicate an approach to the experimental production and study of delirium. We have demonstrated that drugs or physiologic processes that lead to slowing of the EEG also lead to a reduction in the level of consciousness and the efficiency of cognitive processes.[26-30] We have not observed any circumstance in which under experimental conditions diffuse slowing of the EEG failed to be correlated with such an alternation in cognition or vice versa. For example, the prolonged administration of ACTH or cortisone is occasionally associated with psychotic reactions. ACTH and cortisone produce no change in the EEG frequency of normal subjects and most psychotic reactions occurring during the administration of either ACTH or cortisone are unaccompanied by EEG slowing or by changes in cognitive functions characteristic of delirium.[31] In those few instances in which diffuse slowing does occur, a reduction in the level of awareness has been a consistent feature. Atabrine (quinacrine) administered to normal subjects produced heightened attention and vigilance and increased the frequency of the EEG, resulting in a syndrome which was clinically different from delirium.[32]

VOL. 9 1959

Utilizing this experimental technique, it has also been shown that the significant EEG finding is the degree of slowing rather than the absolute frequency.[27,28,33-5] Thus, if the EEG initially is fast or in the upper range of normal, a significant reduction in the level of consciousness and EEG frequency may be provoked by drugs, alcohol, hypoxia, etc. without the EEG frequency necessarily falling below the accepted normal range.[27,28,33] It is therefore possible to have a normal EEG in the presence of an appreciable degree of cerebral insufficiency and reduction in the level of awareness, as when a person whose premorbid alpha frequency is 11 to 12 per second shows a slowing to 8 to 9 per second during a moderate delirium. Both of the values still fall within the accepted normal range for the adult population.

The experimental data receive ample confirmation when one examines patients exhibiting varying degrees of disturbance in the level of consciousness and cognitive functioning (as established by the techniques of examination to be described) in the course of any somatic illness. When one studies patients who improve spontaneously or as the result of appropriate therapy, all patients show an increase in the frequency of EEG corresponding to the degree of recovery of the underlying clinical condition and the degree of improvement in the level of awareness.[34-37] As in the experimentally provoked deliria, a few clinically delirious patients exhibit EEG frequencies within the accepted range of normal, but these also show an increase in frequency on improvement, indicating that their premorbid EEG had been in the fast range. When physiologic derangements can be corrected, as with the administration of oxygen to the patient in congestive failure, the change from the recumbent to the sitting position in the patient with pulmonary edema, the administration of glucose to the patient with spontaneous hypoglycemia, or the transfusion of blood to a patient with very severe anemia, then changes in EEG frequency and in mental state may take place rapidly and always to a corresponding degree.[37] The majority of patients with untreated pernicious anemia have slow EEG's and reduced levels of awareness and both of these abnormalities respond rapidly to the administration of Vitamin B_{12} or liver extract.[34] Of interest is the fact that in pernicious anemia the improvement in EEG and in mental status corresponds in time with the beginning of the reticulocyte response and antedates by a considerable period the rise in hemoglobin. This we consider as evidence that the pernicious anemia process includes a cerebral metabolic defect independent of the oxygen-carrying capacity of the blood, a finding which may be related to Geiger's findings noted previously.[18] Addison's disease and hypothyroidism are two other conditions in which such EEG abnormalities occur with great regularity and respond specifically to appropriate hormone therapy.[35,37]

All these clinical and experimental studies have revealed that the degree of slowing of the EEG corresponds best with the disturbance in consciousness; that these EEG changes are reversible to the extent to which the underlying pathophysiologic process is reversible; and that the character of the EEG change is independent of the specific underlying disease processes but is more related to its severity and duration. On the other hand, there is little correlation between

the degree of EEG change and the more personal aspects of behavior, as will be described.

THE CLINICAL SYNDROME: DELIRIUM

We thus arrive at the proposition that a derangement in functional metabolism underlies all instances of delirium and that this is reflected at the clinical level by the characteristic disturbance in cognitive functions and at the physiologic level by the characteristic slowing of the EEG. To express this slightly differently, a reduction in the level of cognition is a sine qua non of delirium; a relative generalized slowing of the EEG is a sine qua non of delirium, the clinical expression of a cerebral metabolic defect; the diagnosis of delirium is unequivocally established when it can be shown that the level of awareness correlates with changes in EEG frequency, reduction being accompanied by further slowing of the EEG and improvement by relative acceleration of the EEG.

Before describing in more detail the identifying psychologic characterics of delirium, it might be well to comment on the inadequate and confusing fashion in which delirium and the behavior of delirious patients are referred to in the literature. While there are virtually no papers on delirium per se, hospital records and the medical literature abound with case reports involving patients who are delirious by the criteria we have established. In some papers the evaluation of the mental state is an important correlate of other physiologic or pathologic processes that are the subject of investigation. Yet it is common to find such statements as: "The patient was disoriented but not delirious." "The patient was confused and agitated, almost delirious." "He was confused and lethargic and became delirious at night." "He was intermittently obtunded and hallucinating." "The patient became uncooperative and confused." "The patient was unable to cooperate because of lethargy" (this was a patient with ammonia intoxication).

Of a patient dying of hepatic and renal failure we read, "Throughout his hospital stay the patient had displayed varying degrees of emotional lability and alertness. During the last 4 weeks of his life he had fluctuating periods of lethargy, drowsiness, obtundity, and disorientation." In a discussion of the treatment of pneumococcal pneumonia, the case descriptions of patients who unquestionably were delirious include, "He was irritable and thrashing about." "For the first 3 days the patient was restless and almost maniacal." "On admission he was semistuporous, and although responsive to questioning, his answers were irrational. Eight hours after admission he was afebrile, completely rational, and was able to sit up and eat his meals." A good example of a hodgepodge description is the statement, "The retention of carbon dioxide occurring in patients with alveolar hypoventilation may produce a variety of mental manifestations, i.e., depression, anxiety, marked irritability, somnolence, confusion, delirium, and coma." These examples are picked at random and are completely typical of current writing when the mental status of the patient is mentioned at all, which often it is not. It is apparent that most physicians have only the vaguest comprehension of the phenomena they are attempting to report and therefore dispose of the matter by referring to whatever most forcibly strikes

VOL 9 195

their attention, whether it be the significant process or not. This is clearly an unsatisfactory situation, hardly conducive to clear understanding of the conditions being reported. It might be compared to reports of examinations of the heart which read "There were unusual sounds," or, "There was an exceptionally fast and disturbed rhythm," or, "An odd pause every now and then," clearly tantalizing but unhelpful descriptions even if vaguely correct.

We have intentionally delayed discussing the clinical picture of delirium until the case had been developed for delirium as a unified syndrome, a syndrome of cerebral insufficiency. If we have achieved this, we hope it will now be possible for the reader to comprehend in an orderly and logical fashion the manifestations of delirium. Hopefully this should lead to more frequent recognition and more accurate description of delirium.

OL.
9
959

The distinctive feature of delirium concerns the cognitive functions and the level of awareness, ranging all the way from coma, the most severe degree, to a disturbance which is detectable only by very exacting (and clinically impractical) psychologic testing. That there is a degree of metabolic insufficiency beyond which consciousness cannot be maintained is a quantitative rather than a qualitative consideration, as evidenced by the fact that all the characteristics of delirium can clearly be demonstrated if the patient can be studied before he becomes comatose or during the period of recovery from coma.

The reader may perhaps best orient himself as to the nature of the experience of mild delirium by his own personal experience. That most familiar is mild alcoholic intoxication. Also similar, although not strictly speaking "delirium" as we have defined it, is the experience of being awakened suddenly in the middle of the night, especially in a strange place. Subjectively one notes a slight blurring or haziness of perceptions so that what impinges on the sense organs is not so promptly or accurately identified or apperceived. The familiar motion picture stunt of depicting the experience of the drunken person by a blurred image which only gradually comes into focus is a good but perhaps caricatured demonstration of this. Not only does one have difficulty in focusing attention on the important percept, but one also has difficulty in screening out interfering perceptions, whether they arise from the external environment or from within. Similarly one notes a difficulty in marshaling one's thoughts logically, coherently, and appropriately. Desired memories and associations seem less readily accessible and often undesired or inappropriate memories and associations appear in their place. The execution of appropriate behavior and speech encounters the same difficulties.

With very mild delirium, such difficulties may be quite inapparent to the observer since, for the most part, they can be adequately overcome by heightened effort. Nonetheless the EEG at this point already will show some slowing as we have demonstrated in both experimental and clinical delirium. But, if the patient does not or cannot mobilize the increased effort, the observant physician will note vagueness, uncertainty, hesitancy in the patient's manner of speaking, and errors or contradictions of fact that the patient may or may not himself correct. At this point the patient may acknowledge that he is having some difficulty in thinking or remembering.

With further advance of the delirium, this state becomes more manifest. Now the patient becomes unable to perform correctly, even with heightened effort. He begins to appear confused and even bewildered. His responses tend to be slow, uncertain, and often reveal errors in memory, retention, and recall. The heightened effort may be revealed by the knitted brow, the expression of concentration, the slowness of the responses, and a tendency to look up or to look around when asked even relatively simple, straightforward questions. At this phase the patient is beginning to have significant difficulty in dealing with abstract concepts. One of the earliest expressions of this is the disturbance in time orientation, first in respect to the day of the week and later in respect to month and year. He shows increasing difficulty in retaining and grasping what is presented to him, so that he becomes less able to follow the directions of the doctors, nurses, or family. He gives up reading because be cannot comprehend or retain what he reads, and his conversation becomes increasingly limited, incoherent, and irrelevant.

Soon he manifests confusion in his orientation as to place, misidentifying his location, or identifying it correctly only by the most painstaking visual search to establish landmarks. He now may misidentify what he perceives, mistaking voices in the hall for those of familiar persons or pieces of furniture for people. His language becomes less coherent and understandable, and his capacity to maintain attention for any type of task progressively becomes diminished. Concurrently there tends to be progressive loss of motor control and of skills, with increasing difficulty in feeding, grooming, writing, etc. Incontinence of urine and feces, drooling, and spilling of food and water all are characteristic of more severe delirium. At first the patient may have the delusion that he is urinating or defecating in the proper place, as in a dream, and may feel guilty or ashamed later to discover that he had soiled his bed. As the condition deteriorates, however, the patient seems to lose all awareness of these social requirements, if he is aware of urinating or defecating at all.

In the final stages of delirium, before stupor or coma supervenes, the patient's speech usually becomes incoherent and muttering. He seems to be incapable of comprehending or responding to even the simplest questions, and he is totally disoriented for time and place. He may recognize only the most familiar persons in his life, often misidentifying strangers as members of the family. Picking, groping, grasping, and ataxic movements make their appearance. He becomes less and less responsive, lapsing into a stuporous state and finally into coma.

With each of these stages there is an increasing degree of slowing of the EEG. With the mildest degree of delirium the slowing may only be demonstrated by doing a frequency count, but as the disorder increases in severity the EEG becomes more obviously slow and irregular, reaching in progressive steps the very irregular and slow (1 to 3 per second) pattern of coma. Usually when the slowing has reached 5 to 6 per second or less, the characteristic disruption of the pattern by opening the eyes is no longer observed, a physiologic correlate of the reduced impact of externally derived perceptions.

This description in essence summarizes the sequence of changes in the level of consciousness characteristic of progressing delirium. Needless to say, the rate

VOL
9
195

and order in which such developments take place vary greatly from person to person. Thus one patient, following an overwhelming noxious stimulus, such as a severe head trauma, may become instantly comatose, and recovery may reverse the steps just described. In some patients the disturbance in consciousness may progress only to a mild or moderate degree, while in others it may fluctuate considerably, depending on variations in the severity of the underlying metabolic disturbance. In every case, however, the degree of slowing of the EEG correlates well with the degree of decrement in the level of consciousness as is manifest by the progressive changes described above.

This description adequately delineates the psychologic and behavioral changes that characterize all cases of delirium. It by no means, however, covers the full range of behavioral and psychologic aberration which may be noted in the course of delirium. These run the gamut of all varieties of psychopathology, and, in this respect, delirium may simulate any type of mental disorder, neurotic or psychotic. But, as will be discussed later, the presence of the disturbance in the level of awareness and the characteristic EEG changes provide the basis for differentiation of delirium from other psychopathologic entities. If we postulate that the effect of a cerebral metabolic derangement is to interfere with or damage mental processes or mechanisms in the reverse order in which they have been acquired (learned), then the polymorphous character of the clinical expressions of delirium become more understandable. In addition to interference with the systems whereby new and current stimuli are perceived and related to old experience, the systems that have to do with the recording in memory of such new experiences and their subsequent translation into appropriate thought and action are also affected. Further, the systems that have to do with the maintenance and focusing of attention seem to be particularly vulnerable. These are all functions of the ego, and one is justified in presuming that the ego is weakened as a consequence of this attack on its organic substrate.

This weakening of the ego is also manifest in the varieties of bizarre thoughts and fantasies which erupt into consciousness and in the primitive character of some of the defense mechanisms that may be used. With the more severe degrees of delirium, one sees a mental apparatus virtually stripped of all but the most primitive ego functions and barren of the social and cultural standards represented by the superego and the ego ideal. This means that, over and above the universal and characteristic disturbance in the level of awareness, the more personal and idiosyncratic characteristics of the behavior of the delirious patient will be determined by his own past development.

Accordingly, among delirious patients, we may expect to see varying degrees of anxiety, depending on the nature of past experience, the variety of ego defenses available, and the nature of support the patient receives from his environment. Some patients may experience a great deal of free-floating anxiety, with frightening thoughts, fantasies, and dreams and with all the behavioral and physiologic expressions of the anxiety reaction—tremor, sweating, tachycardia, and so on. Occasional patients succeed in overcoming this anxiety by denying or minimizing the extent of their intellectual defect, by withdrawing from or avoiding situations in which their defects may become manifest, by recourse

to sleep, or by confident dependence on the physician, nurse, or family who will care for them. Patients with such successful ego defenses may reveal little manifest behavioral aberration and the fact of even a considerable degree of delirium may be inapparent unless the physician demonstrates by examination the reduction in the level of awareness. Many of these latter patients succeed in hiding their delirium by a façade of pleasantness, cooperativeness, or by parrying with humor or some aggression questions or tests which may expose their difficulties. Some patients with relatively well-developed and healthy ego function prior to illness may even lapse silently into coma with only a very attentive observer appreciating the development of delirium. At the other extreme are the more marginally compensated patients, psychologically speaking, in whom the metabolic derangement applies the coup de grace, so to speak, to the already weak ego. Among such patients one is more likely to see extreme degrees of anxiety and panic, with gross sense deceptions, hallucinations, and delusions of a psychotic character. Such patients are so grossly disturbed that they rarely escape the physician's attention, even though the diagnosis of delirium is not always correctly made. The chronic alcoholic seems particularly vulnerable to this type of development, perhaps as much the result of being the kind of person who becomes a chronic alcoholic as the result of the prolonged influence of alcohol or withdrawal from it. Such patients may injure themselves in panicky flights or may injure others in frantic attempts to ward off what they misinterpret as attacks.

Equally important are the varieties and expressions of depression in the delirious patient. A patient who has previously experienced depression or the patient whose earlier development renders him more vulnerable to depression may well respond to the perception of loss of his intellectual and mental functions with depression. Some patients may respond with excessive shame to their inability to maintain standards, especially in respect to soiling. And some patients may respond with guilt to the disturbing aggressive and/or sexual impulses which surge up during the delirium. Some of these patients present serious suicide risks and it is sometimes only the severity to the underlying disease which renders them physically incapable to carrying out the suicide.

All varieties of neurotic and psychotic behavior may become manifest or accentuated in the course of delirium. In general, such developments constitute accentuations of previous tendencies which may have been latent up to this time.

An important clinical characteristic of delirium is the fluctuation in the manifestations. Many patients appear to be much more manifestly disturbed and delirious at some periods of the 24 hours than others. Careful examination, including EEG study, reveals that these fluctuations generally are not related to changes in the underlying metabolic disturbance, but rather to psychologic and environmental factors. Thus it is quite common for the delirious patient to appear more anxious and disturbed at night than during the day, a situation which finds its explanation in the fact that at night the patient has fewer sensory guides to help him in orientation. The darkness and the absence of familiar persons contribute to this. This accounts for the frequent report by doctors and nurses that a patient "suddenly became delirious" at night; most often the

patient already was delirious but did not manifest behavior that was recognized as disturbed until the additional stress of darkness brought forth more manifest anxiety and disturbed behavior.

THE EXAMINATION OF THE DELIRIOUS PATIENT

In the great majority of instances, the presence of delirium can be recognized and established in the course of taking the routine history. Once the physician becomes suspicious that there is a reduction in the level of consciousness, he can test this without the patient necessarily discovering that he is being so examined. For example, by repeating questions concerned with dates and names of places involved in the patient's illness, he may discover whether or not the patient is able to give consistent answers. By asking the patient to provide such factual data as are usually found on the front sheet of a hospital record or are easily ascertained from other sources, as the home address, telephone number, date of birth, date of marriage, ages and dates of birth of children, physician's name, address, and phone number, duration of residence, etc., it is usually relatively simple to demonstrate all but the milder degrees of disturbance in consciousness. The atmosphere of testing, which may be disturbing to some patients, may be eliminated if the physician simply frames his questions in terms of asking for information, even asking the patient for the date as if he, the physician, does not know it.

A number of relatively simple testing procedures are available if one wishes to establish the presence of a milder delirium or to follow serially the course of delirium. Perhaps the most useful is the serial subtraction of numbers, asking the patient to subtract 7 from 100 or 3 from 100 down to zero. Here one notes the speed, accuracy, the number and nature of the errors made and whether the patient perseverates or loses his place or simply errs in subtraction, or has to seek recourse to a concrete guide such as counting on his fingers. This procedure tests not only attention and concentration but also retention, memory, and the capacity to handle abstract concepts (numbers) without recourse to sensory guides. In evaluating this test, one must take into account the educational background and previous intellectual level of the patient. It cannot be used in patients who have not had at least a sixth grade education. Another useful procedure is to test the number of digits which the patient can retain and repeat forward or backward. The interpretation of familiar proverbs tests the capacity of the patient to deal with abstract concepts. With the more severe disturbances in consciousness, the patient may be unable to repeat the proverb accurately, much less interpret it. With somewhat less severe delirium, the patient may repeat the proverb in essentially the same terms, or give as its interpretation the concrete literal one. The increasing capacity to provide an abstract and generalized interpretation reflects improving function.

Other techniques of examination are described elsewhere.[36,38]

THE DIFFERENTIAL DIAGNOSIS OF DELIRIUM

The possibility of delirium should be considered in *any* patient who is seriously ill organically. Among such patients, however, it must be differentiated from

varieties of apathy, withdrawal, depression, and anxiety which may also accompany serious illness. These states, however, are not accompanied by the varieties of disturbances in the level of awareness which have just been described for delirium, and, if the patient's cooperation can be gained, the absence of such disturbances becomes clearly evident on examination. When in doubt, the issue can always be settled by an EEG, although it must be appreciated that a single, normal EEG does not necessarily rule our delirium since the premorbid record may have been faster. A repeat record after recovery will settle this.

Dementia.—The distinction between dementia and delirium is a somewhat arbitrary one, established by convention. Delirium has been defined as a reversible disturbance and dementia as an irreversible disturbance. Obviously there are many situations in which one cannot know whether or not the condition is reversible until after a period of observation. Thus if the underlying disorder, be it an infection, heart failure, or whatever, clears up and there is no significant improvement in either mental status or EEG, in all probability the condition was dementia and antedated the development of the more acute illness. More often, and especially in the older age group, we deal with patients with a pre-existing mild degree of dementia upon which is superimposed a further impairment in the course of the acute illness. In most instances, dementia develops either gradually over a matter of months or even years or very abruptly following some major cerebral insult, such as a head injury or a stroke from which recovery does not take place. Because the condition is more stable and chronic, there is more opportunity in the demented person for the development of compensatory psychologic devices, the presence of which are of some value in differentiating dementia from delirium. For example, the demented person is somewhat less likely to manifest the extremes of anxiety or panic noted in some delirious patients, although he may show considerable lability of expression of affect, with irritability, easy laughing and crying, and variations between expansive and depressive moods. The extent of the intellectual defect is often obscured by the use of denial, perseveration, and confabulation. Old memories, usually pleasant or successful in fact or in fantasy, are repeated endlessly as part of a pattern of recapturing the more successful past and denying the more restricted present. The attempts of the examiner to test current performance may be warded off by recourse to anecdotes and reminiscences. In general, the disturbance in retention, recent memory, and the capacity to use abstract concepts is less immediately obvious.

The EEG in dementia is less consistently slow as compared to that in delirium. Indeed a significant proportion of at least mildly to moderately demented patients have normal or borderline EEG's. This is probably explained by the fact that the abnormally slow potentials are arising from damaged neurons. In dementia we may presume that the neurons have died or at least are no longer effectively functioning. The electrical activity arising from the neurons still present may not deviate significantly from the normal.[39,40]

Depression.—Many depressed patients complain of difficulty in thinking and of memory loss. The general psychomotor retardation commonly accompanying depression may make it difficult to differentiate such manifestations from

VOL. 9 1959

those commonly seen in delirium. When in doubt the matter can be easily settled by an EEG, since depression is unassociated with any EEG change.

Schizophrenia.—As mentioned previously, the psychotic manifestations in delirium may occasionally simulate those of schizophrenia. Ordinarily in schizophrenia, tests for orientation and level of awareness will indicate no defect. However, if the patient is mute or uncooperative, an EEG will provide the differentiation, since diffuse slowing of the EEG is not a finding in schizophrenia.

Hysteria.—The hysterical psychosis (including the Ganser syndrome, pseudodementia, and prison psychosis) may simulate delirium.[41] In some cases the determinants for the choice of such manifestations were a true delirium in the past or identification with an important person who suffered from delirium. Clinical examination will usually readily distinguish hysterical psychosis from delirium. Generally the difficulties in memory, concentration, and other cognitive functions are either much too sweeping or are spotty. Thus a patient may manifest amnesia in many areas but excellent memory in others. Or the difficulty in intellectual performance may assume ludicrous proportions, such as being unable to answer correctly how many legs a three-legged stool has. Amnesia for one's own identity is almost always an hysterical phenomenon, practically never occurring during delirium. The severely delirious persons may be unable to give his name, but he is not likely to complain of this fact. In any event, the diagnosis is again readily settle by the EEG, which will reveal no abnormality in hysteria.

Excitements.—Manic and schizophrenic excitements may present considerable difficulty in diagnosis and differentiation from delirium, especially since excited persons are likely to be overmedicated, producing a superimposed delirium. The problem is usually clarified after a brief period of clinical observation.

Drugs.—A variety of drugs such as mescaline, lysergic acid, quinacrine, and many others may produce acute psychologic disturbances which are different from delirium. In general these materials produce their effects probably by specific affinity for certain parts of the nervous system or even components of the neurons. They do not produce reductions in the level of consciousness, as we have defined this clinically, but rather certain types of heightened perception—sometimes with hyperalertness and sometimes with states of withdrawal. They are more likely to lead to excited states or states with vivid, complex visual or auditory hallucinations. While the patient may be preoccupied with such experiences, if one can secure the patient's attention, it will be found that he has no significant defect in cognitive function. In contrast to the delirious patient, he may have very vivid memory of these experiences after the disorder is over. It is perhaps significant that the EEG during such states does not show diffuse slowing as in delirium, but rather either diffuse acceleration (quinacrine),[32] sleep patterns in an alert state (atropine),[42] or focal spikes or paroxysmal slow activity (mescaline).[43] There are some grounds to suspect that delirium tremens, the more or less distinctive syndrome noted in alcoholics (which may be part of a withdrawal syndrome), has more in common with these states than with delirium, or at least is a mixture of the two. The basis for this suggestion is the prominence and consistency of hyperalertness, hypervigilance, and hallucinations in delirium

tremens, the clarity of the patient's memory of such experiences after recovery, and the relatively minor character of the EEG changes. Rather than showing diffuse slow activity, most patients with delirium tremens show low voltage fast or moderate voltage fast activity.[44] We believe it was their emphasis on alcoholic patients which misled Victor and Adams[3] to state that the EEG in delirium is usually normal.

Sensory Deprivation.—Experimentally, reduction in sensory input provokes certain psychologic disturbances of psychotic proportions even in some healthy individuals.[45] Hallucinations and distortions of the body image are particularly prominent and may provoke severe anxiety. It is now becoming evident that some psychotic episodes occurring among patients in the respirator and with bandaged eyes are of this origin rather than due to cerebral insufficiency. Obviously both factors may operate. In any event, the EEG again will provide the differential since slowing does not occur as a part of the sensory deprivation syndrome.

VOL. 9 195

SUMMARY

The thesis is presented that a derangement in the general functional metabolism of the brain underlies all instances of delirium and that this is reflected at the clinical level by a characteristic disturbance in cognitive functions and at the physiologic level by a characteristic generalized slowing of the electroencephalogram. As background for this thesis are summarized the studies of a large number of patients exhibiting delirium in the setting of a wide variety of physiologic and biochemical derangements as well as instances of delirium experimentally induced by techniques known to affect cerebral metabolism adversely.

The clinical characteristics of delirium are carefully delineated and the basis established for the identification of delirium and its differentiation from other types of psychologic disturbance commonly seen in organically ill patients.

REFERENCES

1. Noyes, A. P., and Kolb, L. C.: Modern Clinical Psychiatry, ed. 5, Philadelphia, 1958, W. B. Saunders Company.
2. Ewalt, J. R., Strecker, E. A., and Ebaugh, F. G.: Practical Clinical Psychiatry, ed. 8, New York, 1957, McGraw-Hill Book Co., Inc.
3. Victor, M., and Adams, R. D.: Delirium, *in* Harrison, T.: Principles of Internal Medicine, ed. 2, New York, 1954, McGraw-Hill Book Co., Inc.
4. Engel, G. L.: Research Possibilities in the Dementias, Am. J. Psychiat. **106**:146, 1949.
5. Bedford, P. D.: Adverse Cerebral Effects of Anesthesia on Old People, Lancet **2**:259, 1955.
6. Bedford, P. D.: Cerebral Damage From Shock Due to Disease in Old People, Lancet **2**:505, 1957.
7. Engel, G. L.: Fainting: Physiologic and Psychologic Considerations, Springfield, Ill., 1950, Charles C Thomas, Publisher.
8. Waelsch, H. (ed.): Biochemistry of the Developing Nervous System, New York, 1955, Academic Press, Inc.
9. Richter, D. (ed.): Metabolism of the Nervous System, New York, 1957, Pergammon Press.
10. Fazekas, J. F.: Pathologic Physiology of Cerebral Dysfunction, Am. J. Med. **25**:89, 1958.
11. Lowry, O. H.: Enzyme Concentrations in Individual Nerve Cell Bodies, *in* Richter, D. (ed.): Metabolism of the Nervous System, New York, 1957, Pergammon Press, p. 323.
12. Shapot, V. S.: Brain Metabolism in Relation to the Functional State of the Central Nervous System, ibid., p. 257.
13. Waelsch, H.: Metabolism of Proteins and Amino Acids, ibid., p. 431.
14. Richter, D., and Gaitonde, M. K.: The Metabolism of ^{35}S-methionine in the Brain, ibid., p. 449.

15. Strecker, H. J.: Glutamic Acid and Glutamine, ibid., p. 459.
16. Sporn, M., Dingman, W. and Defalco, A.: A Method for Studying Metabolic Pathways in the Brain of the Intact Animal. I. The Conversion of Proline to Other Amino Acids, J. Neurochem. In press.
17. Weil-Malherbe, H.: Quoted by Strecker, H. J., [15] p. 463.
18. Geiger, A.: Chemical Changes Accompanying Activity of the Brain, *in* Richter, D. (ed.): Metabolism of the Nervous System, New York, 1957, Pergammon Press, p. 245.
19. Kety, S. S.: General Metabolism of the Brain in Vivo, ibid., p. 221.
20. Kety, S. S.: Circulation and Metabolism of the Human Brain in Health and Disease, Am. J. Med. **8**:205, 1950.
21. Scheinberg, P.: Cerebral Blood Flow and Metabolism in Pernicious Anemia, Blood **6**:213, 1951.
22. Scheinberg, P., Stead, E. A., Brannon, E. S., and Warren, J. V.: Correlative Observations on Cerebral Metabolism and Cardiac Output in Myxedema, J. Clin. Invest. **29**:1139, 1950.
23. Libet, B., and Gerard, R. W.: Control of the Potential Rhythm of Isolated Frog Brain, J. Neurophysiol. **2**:153, 1939.
24. Meyer, J. S., Faug, H. C., and Denny-Brown, D.: Polarographic Study of Cerebral Collateral Circulation, A.M.A. Arch. Neurol. & Psychiat. **72**:296, 1954.
25. Gibbs, F. A., Williams, D., and Gibbs, E. L.: Modification of the Cortical Frequency Spectrum by Changes in Carbon Dioxide, Blood Sugar, and Oxygen, J. Neurophysiol. **3**:49, 1940.
26. Engel, G. L., Romano, J., Ferris, E. B., Webb, J. P., and Stevens, C. D.: A Simple Method of Determining Frequency Spectra in the Electroencephalogram: Observations on Physiological Variations in Glucose, Oxygen, Posture, and Acid-Base Balance on the Normal Electroencephalogram, Arch. Neurol. & Psychiat. **51**:134, 1944.
27. Engel, G. L., Webb, J. P., and Ferris, E. B.: Quantitative Electroencephalographic Studies of Anoxia in Humans; Comparison With Acute Alcoholic Intoxication and Hypoglycemia, J. Clin. Invest. **24**:691, 1945.
28. Engel, G. L., and Rosenbaum, M.: Delirium, III. Electroencephalographic Changes Associated With Actual Alcoholic Intoxication, Arch. Neurol. & Psychiat. **53**:44, 1945.
29. Ryder, H. W., Engel, G. L., Stevens, C. D., and Ferris, E. B.: The Effect of Carbon Monoxide Hemoglobinemia of Approximately 20 Per Cent on the Cerebral Blood Flow, Gas Exchange, and Electroencephalogram in Human Beings, National Research Council, CMR, Committee on Aviation Medicine, Report #95, Nov. 10, 1942.
30. Engel, G. L., Romano, J., Ferris, E. B., and Kehoe, R.: Unpublished data.
31. Friedman, S. B., and Engel, G. L.: Effect of Cortisone and Adrenocorticotropin on the EEG of Normal Adults: Quantitative Frequency Analysis, J. Clin. Endocrinol. & Metab. **16**:839, 1956.
32. Engel, G. L., Romano, J., and Ferris, E. B.: Effect of Quinacrine (Atabrine) on the Central Nervous System: Clinical and Electroencephalographic Studies, Arch. Neurol. & Psychiat. **58**:337, 1947.
33. Engel, G. L., Romano, J., and Goldman, L.: Delirium. IV. Quantitative Electroencephalographic Study of a Case of Acute Arsenical Encephalography, Arch. Neurol. & Psychiat. **56**:659, 1946.
34. Samson, D. C., Swisher, S., Christian, R. H., and Engel, G. L.: Some Observations on the Mechanism of Delirium in Pernicious Anemia, J. Clin. Invest. **30**:669, 1951.
35. Browning, T. B., Atkins, R. W., and Weiner, H.: Cerebral Metabolic Disturbances in Hypothyroidism. Clinical and EEG Studies of the Psychoses of Myxedema and Hypothyroidism, A.M.A. Arch. Int. Med. **93**:938, 1954.
36. Romano, J., and Engel, G. L.: Studies of Delirium. I. Electroencephalographic Data, Arch. Neurol. & Psychiat. **51**:356, 1944.
37. Engel, G. L., and Romano, J.: Studies of Delirium. II. Reversibility of the Electroencephalogram With Experimental Procedures, Arch. Neurol. & Psychiat. **51**:378, 1944.
38. Romano, J., and Engel, G. L.: Psychologic and Physiologic Considerations of Delirium, M. Clin. North America, **28**:629, 1944.
39. Arnold, W., Friedman, S., and Engel, G. L.: The EEG in Delirium and Dementia. Unpublished.
40. Weiner, H., and Schuster, D. B.: The EEG in Dementia. Some Preliminary Observations and Correlations, EEG Clin. Neurophysiol. **8**:479, 1956.
41. Weiner, H., and Braiman, A.: The Ganser Syndrome: A Review and Addition of Some Unusual Cases, Am. J. Psychiat. **3**:767, 1955.
42. Funderburk, W. H., and Case, T. J.: The Effect of Atropine on Cortical Potentials, EEG Clin. Neurophysiol. **3**:213, 1951.
43. Wikler, A.: Clinical and EEG Studies on the Effects of Mescaline, N-Allylnormorphine and Morphine in Man, J. Nerv. & Ment. Dis. **120**:157, 1954.
44. Engel, G. L.: Unpublished observations.
45. Solomon, P., Leiderman, P. H., Mendelson, J., and Wexler, D.: Sensory Deprivation: A Review, Am. J. Psychiat. **114**:357, 1957.

DL.
9
959

THE USE OF MODERN PHARMACOLOGIC AGENTS IN PSYCHIATRIC DISORDERS

SIDNEY MALITZ, M.D.,
NEW YORK, N. Y.

(Received for publication Dec. 1, 1958)

VOL
9
195

GENERAL CONSIDERATIONS

IN LESS than 6 years, interest in the pharmacologic treatment of psychiatric disorders has mushroomed like the vapor cloud of an atomic bomb. The public has been stirred to new hope by the exciting copy of previously conservative periodicals. State mental hospital administrators have reported remarkable changes within the walls of their institutions, and basic science workers in the fields of chemistry, neurophysiology, and neuroanatomy increasingly have turned their abilities and energies toward a new field dubbed "psychopharmacology." Like the fallout after an atomic burst, many troublesome questions have emerged which must be disposed of before the air can be cleared.

We have been using drugs in psychiatry for many years. Bromides and barbiturates are examples of old standbys familiar both to the psychiatrist and the general practitioner. Are the new drugs any different or more effective than those which preceded them? Is this new wave of interest merely another fad born of man's thirst for some magical cure-all and destined to fade and die in a few years? Is there reasons to believe that a new era is actually upon us? How did this situation come about in the first place? Are certain of the newer agents specific for certain types of mental illness? Will they replace psychotherapy? Can they actually cure? Can they be harmful? How do they work? These are a few of the many questions that are asked and, like fallout, are not disposed of easily. Fortunately, unlike fallout they are not lethal to the recipient!

In 1952, Delay and Deniker[1] reported a new drug which they used for "hibernation therapy." It was noted by these observers that administration of the agent, chlorpromazine, to patients in a darkened, quiet room resulted in a peculiar type of sleep from which the patient could be aroused easily. In addition, it was observed that as soon as the patient awakened he was immediately in full contact with his environment and did not show the usual confusion, clouding of consciousness, or disorientation seen in patients sedated with barbiturates. Agitated patients were noted to become much quieter following "hibernation treatment." In 1954, Lehmann and Hanrahan[2] reported on the use of chlorpromazine in hospitalized schizophrenics, and Winkelman[3] reported on its use in private office patients. It was observed that, if patients were not kept in

bed in a dark room, they did not usually fall asleep yet the calming effects remained. Numerous other investigators[4-8] then initiated study of this drug. Today there are thousands of reports on its usage.

The distinguishing feature of the action of chlorpromazine and its derivatives is their ability to calm a hyperactive, agitated patient without producing marked drowsiness, confusion, or disorientation. In hospitalized patients who are assaultive and agitated, the amount of barbiturate necessary to bring about a similar state of calm as chlorpromazine would result in the patient's falling asleep or sinking into a state of dangerous coma. Thus, chlorpromazine has the added advantage of allowing continued interpersonal contact with the patient after his hyperactivity and agitation have been controlled. Those new drugs which have the ability to curtail motor and verbal hyperactivity and excessive tension without producing appreciable drowsiness and confusion have been called "tranquilizers," "ataractics," and "neuroleptics."

OL.
9
959

Tranquilizer is a misleading word since patients are not rendered "tranquil" with these agents. What actually is observed is a quantitative diminution in their symptomatology without evidence of euphoria. Ataraxia, meaning "peace of mind," is similarly a poor term and gives rise to much misunderstanding of the clinical effects of such drugs. Neuroleptic is probably the best term to describe their effects, but "tranquilizer" has caught the public fancy and probably will remain in the literature for many years.

Other neuroleptic agents, the Rauwolfia alkaloids in particular, have been introduced since chlorpromazine. They will be described, but the latter remains the prototype of this group. *The ability to control and communicate with large numbers of previously unapproachable severely disturbed mental patients for the first time is probably the most important single factor responsible for the current interest in and development of psychopharmacology.* It is important to stress that these drugs are by no means curative. Under optimal conditions, they reduce quantitatively the patient's symptoms so that he may utilize previously impounded adaptive potential to the maximum and function more effectively in his environment. Such agents are not a substitute for psychotherapy. In some instances, they may make the patient more accessible to psychotherapy. In others, they may impede psychotherapy.

In addition to the neuroleptic agents, there also have been introduced analeptic agents which stimulate the central nervous system. The progress in development of analeptic agents has been slower than with the neuroleptics. A group of nonbarbiturate sedatives has been synthesized by the pharmaceutical industry, which are not true "neuroleptics" since they have hypnotic effects similar to barbiturates and may be associated with confusion and coma in overdosage.

In evaluating the use and effectiveness of a pharmacologic agent, it has been amply demonstrated that the ultimate effect of any drug on behavior is a product of the interaction of the specific pharmacologic effects of the drug on the nervous system, the personality structure of the patient, the environment in which it is given and even the attitude and personality of the administering party. Thus marked individual variation exists in both the optimal dosage neces-

sary to evoke clinical effects and the dosage level at which side effects appear. This variability of effect occurs not from patient to patient but in the individual patient on different occasions. There is no set dosage level for any drug and no specific determinations as to the duration of administrations of a particular drug for the individual problem. Each patient must be evaluated individually. Some patients may require continued administration of a maintenance level of drug for many years, just as the diabetic requires insulin or the epileptic, diphenyl hydantoin sodium (Dilantin).

The Agents

CENTRAL NERVOUS DEPRESSANTS.—

The Phenothiazines.—The phenothiazines are the most popular and most effective of the neuroleptic agents. It is to this group that chlorpromazine belongs. They are mildly antihistaminic in action and exert a selective depressant action on the central nervous system. Their exact site of action is unknown, but they are considered to have some effect on the reticular activating system. They must also act on the basal ganglia since parkinsonism may develop as a side effect. Some clinicians have stated that extrapyramidal signs must be clinically evident before such agents are effective. Many others, including myself, disagree. This does not, however, preclude the possibility that those drugs which exert the greatest effect on the extrapyramidal system are among the most effective neuroleptics. Disturbance of the temperature regulating mechanism may occur, usually with transient elevation of temperature. Hypotension may develop and a number of other parasympathetic effects have been noted, such as bradycardia, diarrhea, and nasal stuffiness. Agranulocytosis is a rare complication and may be due to a specific individual sensitivity to the drug. An obstructive jaundice, cholangiolytic in nature, has occurred not uncommonly, especially with chlorpromazine (Thorazine) administration. Such jaundice disappears on discontinuing the drug and in some instances has not recurred when the drug has been administered again. The development of jaundice bears no relation to dosage since cases have been reported on dosages of chlorpromazine as low as 45 mg. daily,[9] while in other patients no jaundice has developed on doses of over 1,000 mg. daily over many months. When parkinsonism develops it can be treated by discontinuing the drug or using antiparkinsonian agents such as Artane or Cogentin. Photosensitivity reactions should be avoided by cautioning the patient to remain out of the sun and wear sun glasses. Troublesome dermatitis may develop which requires discontinuance of the drug.

Chlorpromazine (Thorazine): This agent remains the drug of choice in the treatment of severely agitated, hyperactive or assaultive patients who also show marked anxiety, regardless of diagnosis. Usually this type of patient is found in a hospital because of the severity of symptoms. The ordinary maintenance dosage varies from 150 to 600 mg. daily with occasional doses as high as 1,000 mg. daily. In addition to the physiologic side effects mentioned, psychic side effects in the form of depersonalization may develop which may be most distressing to the patient and precipitate an acute psychotic reaction. Depression

also has been reported developing with use of this drug although it is much more commonly reported with use of the Rauwolfia group. It is therefore contraindicated as a treatment for depression although in so-called "agitated depressions" the agitated component may respond, but the depression remains unimproved. Ayd[10] has pointed out that the psychomotor retardation and languor seen in certain patients as a result of use of this drug has caused them to complain and appear dejected. He labels these patients pseudodepressives pointing out they do not show the weight loss, anorexia, or insomnia of the true depressive. None of these patients, he feels, are suicidal risks. When in doubt, however, it is probably best to discontinue the drug. Occasionally, patients complain of difficulty in visual accomodation and are quite distressed by their inability to read or focus on objects. Some patients develop a chronic nonpurulent conjunctivitis. Apter[11] found that a parasympathomimetic agent, such as neostigmine 7.5 to 15.0 mg. orally or physostigmine (0.1 per cent opthalmic solution) instilled in the eyes once or twice daily was helpful in correcting these atropine-like effects.

Promazine (Sparine): This agent does not appear to be as effective therapeutically as chlorpromazine. Side effects are usually much less intense, however, and some clinicians have preferred it for that reason. It has the same chemical structure as chlorpromazine minus the Cl radical. Comparative estimates of effective dosage range from 75 mg. higher than the dose of chlorpromazine to double the dosage of chlorpromazine. Photosensitivity and jaundice are reported to occur less frequently with this drug than chlorpromazine. Fazekas[12] has used the drug with success in the treatment of acute management problems associated with alcohol withdrawal syndromes, abstinence effects during narcotic withdrawal in addicts, and in acutely agitated psychotics. He used relatively low doses between 50 and 200 mg. daily and saw none of the ordinary side effects. These patients were on the drug for very short periods, however, averaging between 5 and 48 days. The chronic state hospital patients receiving chlorpromazine frequently receive the drug for months or years. This may account for some difference in frequency of side effects. Seizures have been reported by several authors using promazine. Withdrawal should never be abrupt.

Mepazine (Pacatal): This drug is similar in indications and dosage to the above. Several cases of agranulocytosis[13,14] and seizures[15,16] associated with its use have been reported in the literature. It has a strong atropine-like action. Several clinicians have been unimpressed by its clinical effects[15-17] and have felt it was too toxic for general use.

Triflupromazine (Vesprin): This is a recently marketed phenothiazine with the addition of fluorine radicals. It has not yet been fully evaluated, but early reports[18-20] indicate that the dosage range and side effects are similar to those of other phenothiazines.

Prochlorperazine (Compazine): This drug and perphenazine represent attempts to develop a more potent drug, milligram for milligram, than the prototype chlorpromazine. This drug represents a successful step in that direction but, unfortunately, certain side effects have also been intensified. The incidence of extrapyramidal symptoms is much greater with this drug than with chlorpromazine on lower dosages.[21] Only about one-fifth the dosage of chlorproma-

zine is needed for equivalent clinical effects, however. The usual maintenance dosage varies between 10 and 30 mg. daily.

Perphenazine (Trilafon): The usual maintenance dose of this drug is between 16 and 32 mg. daily, depending on the severity of the condition. Side effects with both this drug and prochlorperazine have been relatively few. No photosensitivity or jaundice has been reported with this agent, but it is conceivable that these symptoms might develop after prolonged usage or on a higher dosage range. Perphenazine and prochlorperazine may cause a peculiar form of acute extrapyramidal involvement. Dystonic movements of the head and neck resembling spastic torticollis and spasmodic extension of the trunk muscles resembling opisthotonus may develop after only a few doses. Spasms of the jaw occur also as well as forced movements of the eyes as in oculogyric crises. Marked motor restlessness during which the patient cannot sit or stand still may occur. These symptoms are very distressing to the patient. They may be relieved by administering barbiturates either orally or by injection. Amobarbital (100 mg.) given slowly, intravenously, is very effective. The more bizarre muscular twitchings and dystonic movements may resemble hysterical phenomena and have occasionally been misdiagnosed as such.

The Rauwolfia Alkaloids.—Several purified alkaloids have been synthesized in this country from the Indian plant Rauwolfia serpentina Bentham, used by Indian physicians for centuries. These have 1,000 times the potency of the whole root. The side effects and clinical indications are identical with the phenothiazine derivatives, although their structures differ radically. Two serious side effects seen with chlorpromazine, jaundice and agranulocytosis, have not been reported with the Rauwolfia group. Like the phenothiazines, the Rauwolfia alkaloids also depress diencephalic activity and reduce sympathetic activity. As with chlorpromazine, a picture of parasympathetic dominance prevails. These agents also affect functions of the reticular activating system and the hypothalamus although final definition of this action is lacking. These alkaloids have not been as effective as the phenothiazines and recently have been prescribed less frequently. The probable reason for this is the delay in action seen with Rauwolfia derivatives. In some instances clinical effects are not observed until a week after the drug has been started.

Reserpine (Serpasil): This is the most popular Rauwolfia alkaloid, probably because it was the first to be developed. Dosage ranges from 1.0 to 10.0 mg. daily. It may be administered orally or parentally as can the phenothiazines. Severe depression and several suicides have been reported associated with its usage. Because of the tendency to cause gastric hypersecretion, it should be administered with caution to patients with a history of peptic ulcer or other gastrointestinal disorders.

Deserpidine (Harmonyl): This is another recently synthesized alkaloid of the Rauwolfia family. Dosage ranges from 0.24 to 2.0 mg. t.i.d. It is claimed that fewer side effects develop with this drug than with reserpine. Further reports are necessary before this statement can be accepted.

Rescinnamine (Moderil): This is a purified ester alkaloid of the alseroxylon fraction of Rauwolfia and is closely related in chemical structure and pharmacologic

action to reserpine. It has not been evaluated for a sufficiently long period to draw any firm conclusions, but it appears to be of the same order of effectiveness as reserpine with the possibility of less frequent and severe side effects. Sedation and bradycardia are reported less with rescinnamine. Daily oral dosage in institutionalized psychotics has varied between 3.0 and 12.0 mg.

The Substituted Propanediol Group.—Under this heading are listed meprobamate (Miltown, Equanil) and phenaglycodol (Ultran). These are not neuroleptics in the sense of the phenothiazines or the Rauwolfia alkaloids. They are ineffective in controlling the acutely psychotic and chronically hyperactive agitated patient. Their greater usage has been in the treatment of less severely disturbed patients, the psychoneurotic and psychosomatic conditions.

Meprobamate (Miltown, Equanil): This drug is related to mephenesin. It acts as an interneuronal blocking agent and muscle relaxant. There appears to be a central action as well. This is the most widely used of all the so-called tranquilizers. When first released for clinical use in 1953, few or no side effects were reported. Since then, there have been reports of nonthrombocytopenic purpura,[22] coma from overdosage,[23] and transient skin rashes.[24] The usual dosage is 400 mg. 3 to 4 times a day. At present there are no convincing controlled studies of this drug's superiority over phenobarbital. Lemere[25] has reported withdrawal symptoms such as restlessness, irritability, and tension when the drug was discontinued. He feared the drug might be habit-forming and found that several of his alcoholic patients had become dependent on it. The problem of addiction is a complex one and remains to be established with certainty for meprobamate. The side effects with meprobamate are relatively infrequent and much more tolerable than those associated with the true neuroleptics.

Phenaglycodol (Ultran): The recommended dosage of this drug is 300 mg. t.i.d. It is reported to have a calming effect without interfering with coordination or manual dexterity so necessary in people who work with their hands or drive cars. It is not recommended for the severely disturbed hospitalized psychotic. Insufficient reports are available to assess this drug adequately.

The Diphenyl Methane Derivatives.—This group of drugs has proved singularly unsatisfactory for the treatment of mental disorders.

Azacyclonol (Frenquel): This was initially recommended for the treatment of acute hallucinatory phenomena.[26-29] Its success in this area has not been confirmed.[30-33]

Benactyzine (Suavitil): This drug was initially recommended for obsessive-compulsive syndromes.[34] Reports of its effectiveness in Europe could not be duplicated in the United States. It has now been combined with meprobamate as a therapy for depression. (See the section on central nervous system stimulants.)

Hydroxyzine (Atarax): This drug is of questionable value except in very mild forms of anxiety. Several positive reports have emerged from England reporting on the drug in mentally deficient hyperactive children and in educationally subnormal children, but these results require further verification by other investigators.[35,36]

Nonbarbiturate Sedatives and Hypnotics.—A number of pharmaceutical houses have developed nonbarbiturate sedatives and hypnotics. Some of these include:

Glutethimide (Doriden): The usual hypnotic dose of this drug is 500 mg. at bedtime and the usual daytime sedative dose is 125 to 250 mg. t.i.d.

Ethchlorvynol (Placidyl): The usual hypnotic dose is 500 to 1,000 mg. at bedtime and the usual daytime sedative dose is 100 mg. t.i.d.

Ethinamate (Valmid): The usual hypnotic dose is 500 mg. at bedtime. No daytime sedative dose has been recommended.

Methylparafynol (Dormison): The usual hypnotic dose is 500 to 1,000 mg. at bedtime and the usual daytime sedative dose is 250 to 500 mg. b.i.d.

These drugs have been reported by the manufacturers to be free of the habit-forming proclivities of the barbiturates and the "hang-over" effects of the latter. Whether the former claim is true remains to be clearly established. In regard to their hypnotic potency, none have the effectiveness of 0.1 Gm. of either secobarbital (Seconal) or pentobarbital (Nembutal), although occasionally there does appear to be less morning "hang-over" effect and fatigue. Their use during the daytime carries with it the same objections as the barbiturates, namely, drowsiness and fatigue.

VOL. 9 195

CENTRAL NERVOUS STIMULANTS.—

The Amphetamines.—Amphetamine (Benzedrine) was the first of this group to be used as a general stimulant and antidepressant, but the side effects of jitteriness, irritability, and insomnia proved troublesome. Dextroamphetamine (Dexedrine) was found to have similar side effects, but they were less marked. Methamphetamine (Methedrine, Pervitin) is very similar in action. The dosage is the same with both drugs, 5 to 10 mg. after breakfast, lunch, and at 4 P.M. The amphetamines are not usually given in the evening because of their adverse effect on sleep. Indications will be discussed in the section entitled "The Disorders."

Methylphenydate HCl (Ritalin) and Pipradol HCl (Meratran).—The dosage of Ritalin is 5 to 10 mg. t.i.d. The dosage of Meratran is 1 to 2 mg. t.i.d. These drugs (Meratran is the gamma isomer of Frenquel) were developed as stimulants to replace the amphetamines. It was claimed they would not produce the disagreeable side effects of the former.[37] They do. At times, however, when a tolerance has been built up to the amphetamines, switching to one of these two drugs may produce a stimulating effect once again. These drugs do not always act as stimulants or euphoriants as a number of clinical studies have illustrated, again stressing the importance of the milieu, the administrators of the drug, and the expectation of the patient.

Meprobamate plus Benactyzine (Deprol).—Alexander[38] claims that this combination (400 mg. of meprobamate and 1 mg. of benactyzine per dose) is an effective antidepressant. We have seen no confirming reports and in our own hands results have been disappointing.

Iproniazid (Marsilid).—Iproniazid was originally developed for the treatment of tuberculosis. In 1952 Selikoff and associates[39] reported on some remarkable behavioral changes in severely ill tuberculous patients. Patients who had been virtually moribund were photographed dancing in the aisles of their ward. These photographs received considerable publicity in a national magazine. The drug fell into disuse medically because of its toxicity. In 1954 Lemere[40] reported unfavorably on the drug's effects on a group of 65 mixed psychiatric private patients. Bennett and associates[41] in the same year found no significant differences between a treated and placebo group of chronic schizophrenic patients. In 1957, Kline[42] reported a stimulating effect in a group of 17 "withdrawn regressed deteriorated colorless" chronic hospitalized female patients with "flattened affect" and 9 patients seen in private practice with symptoms of depression and withdrawal. The dosage used was 50 mg. t.i.d. Robie[43] has also reported enthusiastically on the drug and felt it superior to electroconvulsive therapy for the treatment of depression. DeVerteuil and Lehmann,[44] on the other hand, recently reported on 31 hospitalized depressed patients receiving the same daily dosage as Kline's patients, up to 4 months. Eleven (35 per cent) showed a significant improvement but the side effects were considered sufficiently serious to warrant discontinuing usage of the drug. These included dizziness, ataxia, loss of muscular tonus, hypotension, syncope, and acute toxic necrosis of the liver. There have been reports of death due to acute yellow atrophy of the liver with the usage of iproniazid in treatment of depression. Iproniazid is a potent inhibitor of amine oxidase which is responsible for the destruction of serotonin in the brain. Numerous theories are extant regarding the role of serotonin[45,46] in the etiology of mental illness, but there still exists no clear-cut, definitive evidence linking causally the biochemical interrelations thus far discovered in the brain with behavioral changes.

MISCELLANEOUS AGENTS.—

d-Lysergic Acid (LSD-25).—LSD-25 has been well known as a hallucinogenic agent for a number of years. In 1955, Frederking[47] reported on this drug as an aid to psychotherapy. He felt that it caused patients "to relive scenes from . . . earlier personal life and . . . had a lasting influence on organic-neurotic states." Sandison and associates[48] have advanced a theory that LSD-25 may exert "a selective action on the genes which may be the seat of repressed memories" and feel that the drug is therapeutically valuable in a number of psychiatric disturbances including various types of psychoneurotic disorders when used as an adjunct to skillful psychotherapy. They have also reported on an LSD-25-chlorpromazine combination in the treatment of hospitalized psychotics. One must be extremely cautious in the utilization of this psychotomimetic agent as a therapeutic tool. Our own experience with this drug as a hallucinogenic agent in research over the last 8 years has not impressed us with its therapeutic potential. Abreactive phenomena have been observed to occur, but their long-term therapeutic value has been questionable. We have not observed any new insights in patients or "retrieving of repressed memories" that could not also be

obtained in the course of psychotherapy alone. There may be unforeseen dangers inherent in the continuous administration of this drug to nonhospitalized patients for therapeutic purposes. It might be best to await further reports on the therapeutic efficacy of LSD-25 on patients in a controlled, supervised hospital environment, before extensive outpatient trials are run.

Deanol (*Deaner*).—Deanol is the tertiary nitrogen analogue of choline and is considered by Pfeiffer[19] to be the precursor of choline. Pfeiffer postulates that this drug has an antischizophrenic and central nervous system stimulant effect, possibly through increasing the acetylcholine content of the brain. Clinical effects are reported to take place in schizophrenics many months after administration. At least 3 to 4 weeks are required for any central nervous system stimulant action to occur. Pfeiffer hopes that, by developing analogues of deanol that are more muscarinic, a more effective antischizophrenic agent will be developed. Many clinicians remain unconvinced of the validity of Pfeiffer's hypothesis or of the effectiveness of this agent as a specific for schizophrenia. Considerably more research will have to be done by other groups of investigators before deanol can be properly evaluated.

VOL 9 195

The Disorders

Both evaluation and treatment suffer when one attempts to administer these drugs according to the usual diagnostic categories of schizophrenia, neurosis, manic-depressive psychosis, etc. For example, there are some schizophrenic patients who are withdrawn and apathetic; they are frequently referred to as "burnt-out." There are others who are hyperactive, assaultive, restless, rending their clothes, shouting abuse, and destructive to property. Neuroleptic agents may have little or no effect on the first group, but produce remarkable behavioral improvement and calming effects on the second. Yet both groups are schizophrenic. It cannot be said, therefore, that certain groups of drugs are either effective or ineffective for schizophrenic patients. Much depends on the particular constellation of symptoms of the individual patient.

Freyhan[21] has attempted to clarify this situation by evaluating a drug against a group of "target symptoms." By "target symptom" is meant a specific symptom or sign in a patient, the nature of which one attempts to modify with drugs. The presenting symptom at the start of therapy then becomes the base line against which future change, if any, is evaluated. This does not mean that the total over-all functioning of the patient is ignored. This must be taken into consideration in the final evaluation of any patient's response. In determining treatment, however, the "target symptom" approach seems less ambiguous and more logical than prescribing according to the patient's diagnosis. Listed below are the "target symptoms" for which these agents are prescribed and the drugs most effective in alleviating them. Contraindications, or symptoms which may be intensified by these agents, are also included. While the patient's diagnosis is frequently not materially helpful in determining the proper group of drugs, a knowledge of his personality pattern and the nature of his emotional conflicts *is* important in prescribing drugs, especially in relation to side effects. The significance of this statement will become clearer with the examples that follow.

Anxiety.—Anxiety is defined here as a feeling of impending disaster and unrest which may or may not be accompanied by various autonomic and motor concomitants. Autonomic effects may include tachycardia, diaphoresis, pallor, pupillary dilatation, increased respiration, and cold, clammy palms. Motor effects may vary from a complete paralysis of function to marked hyperactivity. Clinically, anxiety may be present constantly or intermittently. It may be mild or moderate or occur in sharp bursts of panic during which the patient feels he will surely die. It is not feasible to employ the more potent phenothiazines or Rauwolfia drugs for mild anxiety. Some of the side effects may increase the anxiety already present. This is especially true in a patient who tends to be hypochondriacal. The tachycardia or weakness occasionally seen with the phenothiazines can be very frightening to such a patient. Anxious patients who are afraid of going insane are extremely distressed by the feelings of unreality occasionally developing with the neuroleptics and, if they are outpatients and are able to control their own medication, will frequently discontinue the drug. Obsessional patients do not do well with the phenothiazines or Rauwolfia group. They become preoccupied with the side effects and suffer increased anxiety if their obsessional patterns are interrupted by the slowing down effect of these drugs. Meprobamate is preferable to the phenothiazines and Rauwolfia group in the treatment of milder anxiety states, although its superiority to phenobarbital and even placebo remains questionable. The true neuroleptics should be reserved, therefore, for the more severe and intense anxiety states which do not respond to meprobamate or other mild sedatives.

Motor Hyperactivity.—Hospitalized, assaultive, and destructive patients respond best and most rapidly to the phenothiazines, particularly chlorpromazine. The Rauwolfia alkaloids, although effective after a period of delay, are not practical where immediate calming and management of the patient are required. The excitement states associated with senile and arteriosclerotic confusion, catatonic schizophrenia, delirium tremens, with drawal from narcotics, and manic behavior have been well controlled by the phenothiazines. Chlorpromazine is usually the drug of choice in these instances, although Fazekas[50] prefers promazine in the acute alcoholic and drug withdrawal states, claiming fewer side effects. Hyperactive children, with and without mental deficiency, have been reported to benefit from the Rauwolfia alkaloids and hydroxyzine. Occasionally, excitement states are seen postoperatively, particularly after eye or genital surgery. These usually respond well to the phenothiazines.

Phobic Reactions.—Reactions in phobic patients are varied and unpredictable. Milder agents such as hydroxyzine and meprobamate are usually of little or no value in relieving phobic anxiety or aiding the patient to overcome his phobic avoidance. Occasionally, patients phobic about traveling to the doctor will be able with the aid of one of the phenothiazines, preferably perphenazine or prochlorperazine, to take the necessary transportation to reach the doctor's office for psychotherapy. On the other hand, some phobic patients develop a phobia about the medication especially if they have experienced any unpleasant side effects and will thereafter steadfastly refuse to take it.

Considerably more study is necessary to determine the long-term effectiveness of these drugs in phobic patients. Dynamically, a phobia is the result of a displacement of anxiety concerning a repressed conflict or event which the patient cannot face, to an innocuous event, object, or situation. Attacking the phobia directly does nothing to alleviate the underlying conflict. Yet, it is interesting to note that a few phobic patients have been observed to experience a rise in self-esteem when they become less imprisoned by their phobia and thus able to function in a more mature manner with a resultant over-all improvement in their general condition.

Paranoid States.—As with phobic patients, paranoid patients may improve or get worse with the phenothiazine and Rauwolfia groups. Meprobamate and diphenyl methanes are of no value in this group. Some paranoid patients on the verge of a complete break with reality and the development of a highly systematized delusional system with many ideas of reference may be stabilized with the neuroleptics. While they are receiving the drug they may be only mildly referential or show little or no symptoms. As soon as it is discontinued these patients may relapse, sometimes in a matter of 24 or 48 hours. In other paranoid patients, especially where hypochondriacal tendencies are marked or the patient develops numerous side effects, the patient may become suspicious of the drug and the doctor prescribing it for him. He may feel that he is being poisoned or unduly influenced. Such patients usually discontinue their medication and refuse to return to the doctor, if they are out of the hospital.

Depressive States.—The phenothiazines and Rauwolfia drugs are contraindicated in depression. The phenothiazines may be given cautiously for treatment of the agitated component in agitated depressions. Meprobamate alone is of no value. Meprobamate combined with benactyzine has been reported effective in depression by Alexander[38] but further reports are necessary to confirm his findings. The amphetamines are helpful in the milder depressions as are methylphenydate (Ritalin) and pipradol (Meratran), but in the more severe depressions the dangers of suicidal risk are great and it is best not to temporize with drugs but rather to hospitalize the patient and administer electroshock therapy. The phenothiazines and Rauwolfia drugs should not be used along with electroshock for fear of circulatory collapse. Iproniazid has been recommended for depression and has been called a "psychic energizer."[42] This is a misleading term. Not all depressions are due to a lack of energy nor are they all apathetic; for example, consider the agitated depression of the involutional melancholic. The extreme toxicity of this drug combined with the contradictory nature of the reports on its clinical effectiveness seem to preclude its use for depression except in a carefully controlled setting where further research can be performed. The treatment of choice for depression remains electric shock treatment.

Present and Future

If we could stop the clock at any one moment and take a cross-section of the drug evaluations being done across the globe, we would have difficulty establishing the new pharmacologic agents properly in the psychiatric armamentarium. Of course, we cannot stop the clock. As it ticks on, new drugs appear

on the market, new techniques of evaluation are under development and new uses are discovered for these agents. Any prediction for the future can be only an educated guess.

Present techniques of evaluation add to the difficulty in making proper assessments. Not all investigators state their criteria of improvement clearly, nor is there complete agreement among those who do. Clinical assessments with their broad, comprehensive, and sometimes ill-defined scope have their shortcomings as do many rating scales with their rigid and limited range.

Controversy has arisen regarding the relative merits of the uncontrolled pilot study and the "double blind" evaluation. The latter is set up so that neither the patient, administering personnel, nor rating staff are supposed to know whether the patient is receiving placebo or active substance. Actually both approaches are essential. The small pilot study is invaluable in getting the clinical "feel" of a new drug, in determining optimal dosage range and in correlating dosage with side effects. Double blind studies are designed to eliminate bias. They require elaborate preparation to execute and often have the additional disadvantage of a fixed schedule which cannot be altered for each patient's needs. In addition, the patient is able often to differentiate between drug and placebo on the basis of the side effects, which occur more markedly and uniformly with the drug. No one has been able to devise a placebo that can imitate successfully the side reactions of a potent therapeutic agent! Nevertheless, double blind studies are valuable in helping to eliminate the subjective pitfalls of unbridled enthusiasm and advance pessimism.

Toxic effects of drugs are not always apparent immediately and it may take many months for some to develop or be reported. There have been too few studies of the chronic toxicity of the new agents. There is some evidence that they may disrupt the function of the endocrine apparatus, particularly the gonads. Much more information is needed. Those agents lacking in side effects usually have been found deficient in clinical effectiveness. A current goal is to develop a drug in which the greatest possible disparity would exist between the dosage capable of evoking clinical effects and the dosage at which toxic side effects begin to appear.

It is hoped that the many careful animal studies now being done will provide measures of the therapeutic potentialities of the new agents, while a great deal may also be learned of toxicity. The final test, of course, is the study of their action when administered to man. Ultimately, both toxicity and clinical effects must be assessed on human subjects. Sharp discrepancies have been found to exist between findings in animals and man.

The relationship of the use of such drugs to psychotherapy is a matter of much discussion. It has been mentioned that many patients who are markedly anxious or phobic may not be amenable to psychotherapy until a neuroleptic is given to reduce the intensity of their symptoms. In such instances the drug is not potentiating psychotherapy but making it possible. This is no mean achievement in itself. Similarly, with certain patients who are mildly to moderately depressed, an analeptic agent may make them more accessible to psychotherapeutic intervention.

A fertile area for clinical research now exists with those patients ordinarily considered to profit little from psychotherapy. Patients with borderline intelligence and language barriers are particular examples.

Two fears are commonly voiced by psychotherapists who have had little or no experience with the new psychopharmacologic agents. The first is that neuroleptic agents might reduce anxiety to such a degree that the patient loses his motivation for definitive treatment. The other is that these pharmacologic agents act as magical symbols of strength for the patient, satisfying his dependency needs in an unrealistic, infantile, and artificial way, thereby preventing permanent maturational change in his character. It has been our observation that few patients receiving both psychotherapy and the new drugs experience a decrease in anxiety sufficient for them to consider leaving treatment.

The second fear merits serious consideration. At present, the trend is to prescribe the new drugs for psychiatric patients whose personality functioning is so badly disturbed that there is no question of a total reconstruction of the personality but merely a hope of repair. Patients making satisfactory progress in psychotherapy or psychoanalysis are not usually given the new drugs unless symptoms develop which are so disorganizing and distressing that they threaten to impair or disrupt the therapy. We do not know whether these agents hasten or delay treatment of patients in psychotherapy who are ordinarily not considered for drugs. There is a need to compare the progress of this group of patients with and without administration of pharmacologic agents.

VOL. 9 195

References

1. Delay, J., and Deniker, P.: 38 Cases of Psychosis in Prolonged and Continuous Chlorpromazine Treatment, Compt. rend Congres medecins alienistes et neurologistes, Luxembourg, Belgium, July 21-27, 1952, pp. 497-518.
2. Lehmann, E. H., and Hanrahan, G. E.: Chlorpromazine, New Inhibitory Agent for Psychomotor Excitement and Manic States, Arch. Neurol. & Psychiat. **71**:227, 1954.
3. Winkelman, N. W.: Chlorpromazine in the Treatment of Neuropsychiatric Disorders, J.A.M.A. **155**:18, 1954.
4. Kinross-Wright, V.: Chlorpromazine Treatment of Mental Disorders, Am. J. Psychiat. **111**:907, 1955.
5. Goldman, D.: Chlorpromazine Treatment of Hospitalized Psychotic Patients, J. Clin. & Exper. Psychopath. & Quart. Rev. Psychiat. & Neurol. **17**:45, 1956.
6. Brill, H., and Patton, R. E.: Analysis of 1955-1956 Population Fall in New York State Mental Hospitals in First Year of Large Scale Use of Tranquilizing Drugs, Am. J. Psychiat. **114**:509, 1957.
7. Malitz, S., Hoch, P., and Lesse, S.: A Two Year Evaluation of Chlorpromazine in Clinical Research and Practice, Am. J. Psychiat. **113**:540, 1956.
8. Fink, M., Shaw, R., Gross, G. E., and Coleman, F. S.: Comparative Study of Chlorpromazine and Insulin Coma in Therapy of Psychosis, J.A.M.A. **166**:1846, 1958.
9. Zarowitz, H., and Friedman, I. S.: Jaundice Following Moderate Amounts of Chlorpromazine, New York J. Med. **57**:1922, 1957.
10. Ayd, F. J.: Drug Induced Depression—Fact or Fallacy, New York J. Med. **58**:354, 1958.
11. Apter, J., and Rinsley, D. B.: Counteraction of the Effects of Mepazine on the Eye by Means of Parasympathomimetic Drugs, J. Clin. & Exper. Psychopath. & Quart. Rev. Psychiat. & Neurol. **18**:335, 1957.
12. Fazekas, J. F., Schultz, J. D., Sullivan, P. D., and Shea, J. G.: Management of Acutely Disturbed Patients With Promazine, J.A.M.A. **160**:46, 1956.
13. Feldman, P. E., and Statman, J.: Agranulocytosis During Treatment With Methylpromazine, Am. J. Psychiat. **114**:464, 1957.
14. Gore, C. P., and Beizanek, A.: Agranulocytosis During Treatment With Pacatal, Lancet **2**:1081, 1956.
15. Ayd, F. J.: A Clinical Evaluation of Pacatal, Dis. Nerv. System **18**:142, 1957.
16. Denber, H. C. B.: Ineffectiveness of Mepazine (Pacatal), Am. J. Psychiat. **114**:756, 1958.

17. Kline, N. S., and Jacob, G. M.: Use of Pacatal (N-Methylpiperidyl-(3)-Methylphenothiazine) in Psychiatric Patients, Am. J. Psychiat. **112**:63, 1955.
18. Azima, H., Durost, H., and Cahn, C.: Vesprin and Mopazine: Two New Phenotropic Substances, Am. J. Psychiat. **114**:747, 1958.
19. Goldman, D.: Observations on the Clinical Use of Vesprin, Monographs on Therapy **2**:177, 1957.
20. Niswander, G.: Vesprin in the Treatment of Mental Illness, Monographs on Therapy **2**:184, 1957.
21. Freyhan, F. A.: Remarks on Clinical and Investigative Aspects of Neuroleptic Drugs, Second International Congress for Psychiatry, Zurich, September, 1957.
22. Carmel, W. J., and Dannenberg, T.: Nonthrombocytopenic Purpura Due to Miltown (2-methyl-2-*n*-propyl-l, 3-propanediol dicarbamate), New England J. Med. **255**:770, 1956.
23. Charet, R., Brill, B., and Elloso, C.: Coma After Miltown Overdosage, Ann. Int. Med. **45**:1211, 1956.
24. Friedman, H. T., and Marmelzat, W. L.: Adverse Reactions to Meprobamate, J.A.M.A. **162**:628, 1956.
25. Lemere, F.: Drug Habituation, J.A.M.A. **160**:1431, 1956.
26. Ayd, F. J.: A Clinical Evaluation of Frenquel, J. Nerv. & Ment. Dis. **124**:507, 1956.
27. Browne, N. L. M.: Selection of Patients for Treatment With Alpha-4-Piperidyl Benzhydrol Hydrochloride, J. Nerv. Ment. Dis. **123**:130, 1956.
28. Niswander, G. D., and Holt, E. K.: Chemotherapy With Azacyclonol in Mental Illness, J. Nerv. & Ment. Dis. **123**:473, 1956.
29. Odland, T. M.: Azacyclonal (Frenquel) Hydrochloride in the Treatment of Chronic Schizophrenia, J.A.M.A. **165**:333, 1957.
30. Barsa, J. A., and Kline, N. S.: Azacyclonal (Frenquel) in the Treatment of Chronic Schizophrenics, Am. J. Psychiat. **113**:654, 1957.
31. Clark, L. D.: Further Studies of the Psychological Effects of Frenquel and a Critical Review of Previous Reports, J. Nerv. & Ment. Dis. **123**:557, 1956.
32. Lemere, F.: Failure of Azacyclonal (Frenquel) to Relieve Non-Experimental Mental Confusion and Hallucinations, Am. J. Psychiat. **113**:840, 1957.
33. Peak, E. C., Canestrari, R. E., and Robuck, B. E.: The Effects of Frenquel Upon Chronic Disturbed Patients, J. Nerv. & Ment. Dis. **124**:504, 1956.
34. Jensen, O.: Suavitil in the Treatment of Psychoneuroses, Danish M. Bull. **2**:140, 1955.
35. Segal, L. J., and Tansley, A. E.: A Clinical Trial With Hydroxyzine (Atarax) on a Group of Maladjusted Educationally Subnormal Children, J. Ment. Sci. **103**:677, 1957.
36. Craft, M.: Tranquilizers in Mental Deficiency: Hydroxyzine, J. Ment. Sci. **103**:855, 1957.
37. Talley, J. E.: Meratran, A New Cerebral Stimulant: Report on the Results of Clinical Investigation, Psychiatric Research Reports 1, 1955.
38. Alexander, L.: Chemotherapy of Depression. Use of Meprobamate Combined With Benactyzine (2-Diethylaminoethyl Benzilate) Hydrochloride, J.A.M.A. **166**:1019, 1958.
39. Selikoff, I. J., Robitzek, E. H., and Ornstein, G. G.: Toxicity of Hydrazine Derivatives of Isonicotinic Acid in Chemotherapy of Human Tuberculosis (Preliminary Report), Quart. Bull. Sea View Hosp. **13**:17, 1952.
40. Lemere, F.: Isoniazid Treatment of Psychiatric Patients, Arch. Neurol. & Psychiat. **71**:624, 1954.
41. Bennett, I. F., Cohen, D., and Starer, E.: Isoniazid in Treatment of the Chronic Schizophrenic Patient, Arch. Neurol. & Psychiat. **71**:54, 1954.
42. Kline, N. S.: Iproniazid, an Amine Oxidase Inhibitor as an Example of a Psychic Energizer, Reported at Regional Research Meeting, American Psychiatric Association, New York, April, 1957.
43. Robie, T. R.: Marsalid and Electro-Convulsive Shock Therapy, Reported at Regional Research Meeting, American Psychiatric Association, New York, April, 1957.
44. DeVerteuil, R. L., and Lehmann, H. E.: Therapeutic Trial of Iproniazid (Marsilid) in Depressed and Apathetic Patients, Canad. M. A. J. **78**:131, 1958.
45. Marrazzi, A. S.: The Effects of Certain Drugs on Cerebral Synapses, Ann. New York Acad. Sci. **66**:496, 1957.
46. Wooley, D. W., and Shaw, E. N.: Evidence for the Participation of Serotonin in Mental Processes, Ann. New York Acad. Sci. **66**:648, 1957.
47. Frederking, W.: Intoxicant Drugs (Mescaline and Lysergic Acid Diethylamide) in Psychotherapy, J. Nerv. & Ment. Dis. **121**:262, 1955.
48. Sandison, R. A., Spencer, A. M., and Whitelaw, J. D. A.: The Therapeutic Value of Lysergic Acid Diethylamide in Mental Illness, J. Ment. Sci. 491, 1954.
49. Pfeiffer, C. C., Jenny, E. H., and Gallagher, W.: Stimulant Effect of 2-Dimethylaminoethanol-Possible Precursor of Brain Acetylcholine, Science **126**:610, 1957.
50. Fazekas, J. F., Sullivan, P. D., and Schultz, J. D.: Use of Dimethylamino-n-Propylphenothiazine in the Management of Patients With Acute Mental Disturbances, M. Ann. District of Columbia **25**:67, 1956.

OL.
9
959

THE CHALLENGE OF THE PARTIAL CURE

LAWRENCE S. KUBIE, M.D.,*
NEW YORK, N. Y.

(Received for publication Dec. 1, 1958)

VOL.
9
1959

THE physical survival and the spiritual health of man require that medicine must continue to progress. However, it is not always realized that this very progress may lead individual patients and their families through periods of intensified suffering. This is not unlike the suffering which is caused when technological progress in industry throws a whole generation out of work before a more general advance reabsorbs the unemployed. The analogous fact that medical progress can put whole generations of men through torment is not an argument for slowing the progress of medical science or for abandoning research. It is explicitly a plea rather to accept this challenge by limiting and controlling the pain occasioned by progress.

The stresses are many and varied. Those to which I am calling attention here arise from partial cures and the problems which these create for the patient, for the family, and for the community. At present neither organized medicine, including the current wave of enthusiasm for what is optimistically called "rehabilitation," nor medical and psychiatric social service, nor the community as a whole makes adequate provisions to cope with these problems.

Examples of this are found in those fields of medicine in which growth and progress are most rapid. For instance, the human tragedies which arise because of the dramatic conquest of prematurity can sadden and burden three generations: the young parents who do not yet have the inner security or the financial resources which the adequate care of these babies require; the grandparents who must shoulder the burden; and finally the baby himself. Here modern medicine has begun to save lives even before most lives begin; but the ultimate quality of these lives, of their minds, of their physical health is not an occasion for complacent self-satisfaction. We may have solved the blindness due to retrolental fibroplasia, which for a time was a tragic complication of prematurity; but we will be plagued for generations by other problems in this same group: e.g., the high incidence of birth injury, cerebral palsy, and mental deficiencies of different kinds and degrees, and the still uncertain relationship to the incidence of emotional instability. If we were more far-sighted, the community would already be creating special facilities for the study of the development of the

*Clinical Professor of Psychiatry, Yale University School of Medicine; Faculty, New York Psychoanalytic Institute; and Lecturer in Psychiatry, College of Physicians and Surgeons of Columbia University, New York.

premature infant during the first 5 years of life, special facilities for the training of skilled visiting nurses, teachers, and clinical psychologists, and special facilities for training and giving emotional support to the parents themselves. Instead, we leave the problem in the hands of unaided parents, who in most instances are young, impecunious, inexperienced, and therefore frightened. We leave these young parents to face alone the heavy financial burdens with which this proud medical victory over prematurity has saddled them, just when they are launching their struggles for some degree of economic and/or professional security.

Turning to another group of examples, we encounter the problems of the partial cure as a residue from the war. Men survived wounds and infections from which in every previous war they would have died. In spite of mutilating wounds of tragic dimensions, there was a steady drop in the death rate. The same thing is occurring today after civilian accidents, burns, falls, auto wrecks, and plane crashes. With the introduction of sounder biochemical correctives, better methods of blood replacement, better surgery, sulfa drugs, and antibiotics, the immediate survival rate has jumped. Yet the survivors of these experiences may be deeply affected emotionally. It is as if they had lived in reality through the worst nightmares of which childhood is capable. Here again a far-sighted community would have foreseen that the mere fact of survival would not be an unmixed blessing but would often create emotional problems which individual patients and their families have rarely before survived to face.

The same problem arises in varying forms and degrees among cardiac patients, after polio, and after many other infectious diseases. Many of the great plagues no longer are death dealers but still deal out injuries which leave men crippled. Men who had been economically independent before their illnesses can be so no longer. The head of a household on whom wife and children had depended emotionally as well as financially survives only to become more dependent and more helpless than the youngest baby in his family. This will change the entire pattern of life in that home. Normally a strong supportive image forms in the mind of the child around such words as "father" or "mother." They are strong representatives of safety, authority, punishment, and reward. Instead the crippled survivor is reduced to the image of someone who is dependent, impotent, and helpless, who must be served, who can be fooled and out-maneuvered, and whose threats and promises are empty. The effects of this upon the psychologic development of the growing child will vary with many variables, among which is the age which the child had attained when the change occurred. Consequently the effects will vary on the family patterns which that child will create when he in turn grows to maturity. These problems demand provisions for special research and special care, if these partially cured patients are to lead lives which are worth living and if the members of their families are not to be damaged rather than enriched through their survival. How much study are we as analysts giving to this? How much thought is the community giving to the impact of these medical triumphs over death on the configuration of family life?

Clearly until we can prevent disease, the mere victory over death without the restoration of full health creates ever more complex economic and emotional

problems. That this is a rapidly growing challenge would seem to be obvious, but we are not training human beings to deal with it. Moreover, if we were to multiply our medical schools one hundred-fold, we would still not turn out enough psychiatrists to deal with the emotional aspects alone. This is one more argument for the necessity of developing a new subdiscipline in medicine, i.e., the doctorate in medical psychology for which I have long been pleading.

I have not as yet referred to the partial cures of psychiatry itself. Every form of psychiatric therapy is constantly turning them out, thus placing on families the heavy burden of dealing with convalescent patients who are only half well. We cannot for this reason deprecate what is being done. Often the half-cures are minor miracles, and they are always stages in the path toward more complete therapeutic achievements in the future. Moreover, if we look still further into the future they can be seen to be stepping stones toward ultimate prevention, because from initial failures in therapy and then from half-successes (perhaps even more than from full successes) we learn the lessons which are ultimately translated into prevention. But "ultimately" can be a long time away, and the psychiatric half-cure is with us here and now.

VOL. 9 1959

As we unload on helpless families their half-cured relatives, we sometimes create dangers to life. More often what we create are distressing circumstances over which we exercise no social controls. Untrained families, who are themselves emotionally involved in the patients' illness, must cope with problems which are too much for them; and again without adequate hospitals or trained personnel agencies to render assistance.

It would seem obvious that the staffs of mental hospitals should understand that every patient who becomes well enough to leave should return to the community and to his home through a carefully planned sequence of steps, in facilities manned by trained people, with plans to assist him in dealing with his family and to assist his family in dealing with him. Otherwise disaster may arise out of the half-cures of psychosurgery, after every form of shock treatment, after the so-called tranquilizers, and after every form of psychotherapy from the most precise psychoanalytic psychotherapy to every crude variant.

For instance, a young, hallucinated, delusional paranoid schizophrenic patient was operated upon after all other methods had failed. After his lobotomy, his gross delusions disappeared. He made a comfortable and easy adjustment on the ward. He made a good adjustment in the activities program. Finally he was placed on outpatient status and was allowed to go home for longer and longer visits. On these brief outings he did so well that after awhile he was placed on full outpatient status, with scheduled visits to the outpatient clinic at monthly intervals. He was quiet and apparently friendly, but he did not talk very much. This was the only difference which the family realized. In the course of time, the question came up whether he was not ready to return to work. He did nothing about this. He said nothing alarming and seemed to show no increase in tension. A few nights later, however, he shot and killed a young physician whom he had seen from a distance in the hospital where he had first been studied—a physician who had never had any direct responsibility either for his care or for his hospitalization. Then it was discovered that his

entire delusional system had been present all the time, but that as a result of the operation the intensity of the emotional investment in that system had temporarily abated. It was only when life began to reassert its inevitable demands that the emotional intensity began to mount and a flood of bitterness began again to course through the veins of his delusional system.

A woman who was the mother of four young children developed a paranoid delusional system involving her husband, her children, their friends, and the community. Ultimately, after great difficulty and many heartaches and at heavy financial sacrifice, she was placed in a private hospital. There insulin, ECT, and psychotherapy were used without altering her state. Finally the family resources were exhausted; they had to turn to a state institution. There the same therapies were tried again, but this time combined with large doses of the "tranquilizers." The patient became calm, relaxed, smiling, and friendly. She participated actively in the work of the hospital and in occupational therapy. She was friendly with the staff and with other patients. Soon she was permitted to pay visits to her home: at first for a day, then for weekends, then for longer periods. Ultimately she was discharged and returned to the setting in which her illness had appeared. After a time she asked her husband to dismiss the kindly and elderly housekeeper who had taken her place both as housekeeper and as a surrogate mother for her children during her long illness. In spite of his misgivings, the husband felt that he could not block her impulse to reinstate herself in her rightful role with her own children freed from the presence of the older woman. She no longer had any demonstrable delusions, but a persisting paranoid attitude manifested itself in many indirect ways. Earlier in her illness she had expressed fantastic delusional ideas about her husband in the presence of her children and about the children in the presence of anyone. These now came out in the form of insinuations dismissed with a half-laugh. The words would be said and taken back, or they would be aimed at the children's friends, or the children's words would be doubted. If the children returned home even a few minutes late, they would be cross-examined about their activities, their companions, and where they had been. An atmosphere of continuous and seething bitterness, suspiciousness, and hostility was created, but always about trivialities. The smile was fixed and hard to distinguish from a snarl. The youngsters would reach out and then shrink away. One of the four started vomiting again. Another stayed out nights. The school work of a third went to pieces and he began to play hookey. The young husband, who was away all day, earning for the family, lived in justifiable terror over the emotional destruction which was proceeding at home. He asked what good it was to get one half-well patient out of the hospital only to create four new patients for the future.

Unfortunately such experiences are not rare. They lead us to ask whether the release of this woman from the hospital had been in fact a contribution to her health and happiness, to that of the husband, and to the future health and happiness of the four children. She is no longer commitable; but how many new illnesses and delinquents is she creating for the future? She is one more digit in the statistics of discharges from the state hospital system. But has this been an economy even for the community? She can be cited before a state legislature

as an argument for additional appropriations for psychiatric research. She can be used as the basis for claims of therapeutic triumphs. But this halfway result with its tragic consequences is hardly something to compel unquestioning and uncritical admiration even from the misinformed press.

Nor should we shut our eyes to the fact that precisely the same thing is happening with all techniques of psychotherapy. Here too we are sometimes catching glimpses into the unknown, sometimes achieving reassuring immediate results, but all too often leaving the patient in a halfway stage between sickness and health. He may never have been hospitalizable. He may no longer be totally incapacitated by his neurosis. But he may still be too sick to be a rewarding member of his family or of his community, too sick perhaps to perform adequately on his job or in school. He may have made a struggle for health, which has taken gallant courage and perseverance. We may respect that struggle, and we may respect him for making it. We may try to minimize the fact that his illness is still there. But what does its persistence do to the family?

For years the family has paid the price of his neurosis in the several currencies of feelings, of money paid out, of the unequal distribution of family chores and resources and attention, and in the uncomplaining and unresented absorbing of his rejections of them. For years the members of such a family have been storing up pain, hope, irritation, resentment, and anger. Now as the patient almost gets well but does not quite make it, it becomes increasingly difficult and sometimes impossible for the family to hold back all of these pent-up feelings. The years of waiting, the years of deferred hope smoulder in their hearts. All of the money that has been poured into treatment becomes a gigantic debt that can never be collected. This creates a milieu of semidisguised hostility which is hard enough for even a fully cured patient to deal with peacefully and without being shaken.

Yet in some measure and in different forms this is the setting to which all partially cured patients return. Such circumstances impose inhuman burdens on families. It is naïve to expect them to maintain an unfailing gentleness, patience, tolerance, and forgiveness for the human consequences of the neurosis with which their relative has struggled and with which psychiatry has battled with only partial success.

Again, one sees this in the sustained efforts which conscientious, warmhearted, sincere human beings make to hold together marriages which may themselves have been the products of the neuroses of earlier years. One sees it in the struggles that parents make to salvage children who are heading into psychopathic delinquency. One sees it in the attempts of dedicated teachers to fire the imagination of talented youngsters, who, because of neurotic difficulties, are unable to mobilize their potential talents.

These struggles are going on all around us. We cannot possibly deplore the fact that they must go on. Indeed, I pay tribute to them by spending my own life immersed in them. Yet this would not justify our shutting our eyes to the fact that as our efforts reach out closer and closer to the stars without grasping them, the cost increases constantly to parents, families, brothers, sisters, children, and to the community. Nor should we overlook the fact that medicine as it is

VOL 9 195

organized, psychiatry as it is organized, our community social agencies as they are organized provide at most an infinitesimal fraction of the support, guidance, help, and training which such families need, in every walk and level of life. For a long time to come, the challenge and the burden of the partially cured patient who remains in our midst or who returns to us from illness to an increasing extent represent one of the two great psychiatric problems of the coming century. Not only does this constitute a challenge to the members of the psychiatric profession, but it also makes enormous emotional demands on patients and on their families. Few psychiatric hospitals and few individual psychiatrists seem to realize the added demands for special time—time devoted to educating, guiding, and supporting the families of patients, the additional demands for therapy by members of the family, and the additional staffing which all of this will make necessary.

OL.
9
959

Above all, let us not fool ourselves that statistics of discharge from hospitals are necessarily indicative of long-term economy or of a sound community policy with respect to the care of such patients.

Only the ignoramus claims miracles. Starry-eyed laymen may expect drugs alone to cure those convulsions of the human spirit with which humanity has been struggling throughout the ages. Politicians may want to make political capital of some new therapeutic device for which great claims are made before it has been adequately tested, or may want to use it as bait to legislators to increase appropriations for legitimate medical goals. Eager-beaver pseudoscientists may use them for personal advancement. Most of these people are naïve but well-intentioned. Few are venal. But the important thing for us as social scientists is to face increasing transitional burdens which medical progress imposes, without fear but also without shutting our eyes and with resolution.

THE PSYCHOSOMATIC CONCEPT, USE AND ABUSE

EUGENE MEYER, M.D.,
BALTIMORE, MD.

From the Psychiatric Liaison Service and the Departments of Psychiatry and Medicine, Johns Hopkins University School of Medicine

(Received for publication Dec. 1, 1958)

VOL
9
195

A BRIEF review of present trends in the field of psychosomatic medicine must be selective and will inevitably represent a personal point of view. This is inescapable and probably desirable in a field of such broad and indefinite scope and one in which pertinent literature is now to be found in journals devoted to all medical specialties as well as those devoted to psychiatry, psychoanalysis, and psychosomatic medicine as such.

The field of psychosomatic medicine is defined in a statement of the American Psychosomatic Society in the following terms: " . . . psychosomatic medicine is a way of approaching problems of health and disease. It is an approach which attempts to apply the best and most modern psychodynamic understanding of human personality function in all phases of medical practice—diagnosis, therapy and research. . . . It is emphasized that psychosomatic medicine is not a speciality in medicine but rather an elaboration of medical theory and practice which takes into account the role of psychological processes in the form and functions of the body in health and disease." The story of psychosomatic medicine then is essentially the story of man as a psychobiologically integrated organism. The usefulness of these ideas or concepts may be examined in the fields of research, of clinical practice, and of medical education. After brief historical comment, the present discussion will present a point of view on developments within each of these fields.

HISTORY OF THE PSYCHOSOMATIC CONCEPT

The functional and structural interrelations of mind and body have occupied man's thinking as far back as we have any record of man's self-awareness. Philosophers, scientists, historians, and politicians have speculated on and written about this topic for different reasons and to different ends. In this country, two of the earliest systematic treatises by physicians are those of Parrish[1] (1805) and Brigham[2] (1832). Parrish emphasizes the etiologic role of emotional states, such as fear, anger, grief, and joy, in the genesis of physical disease. His comments are a fascinating sample of a special and early interest in these matters.

This report has been aided, in part, by a grant from the Foundations' Fund for Research in Psychiatry.

Of greater general importance, perhaps, is the fact that, until relatively recently, the majority of clinicians did not hesitate to include observations on their patients' mental and emotional functioning and their patients' reactions to important people and events in their living as legitimate data in the description of evolving patterns of disease.[3,4] Thus, Garrod, who named the illness "rheumatoid arthritis," commented as follows in 1876: "The affection, as far as my own experience enables me to form an opinion, more frequently occurs in individuals who have been exposed to the influence of powerfully depressing causes, either mental or physical, but when it is excited by severe cold or acute rheumatism, such predisposing causes may not be met with in so marked a degree. . . . Prolonged mental anxiety likewise powerfully predisposes to the disease, especially if, as is often the case, it is combined with night watching. I have known many instances where rheumatoid arthritis has followed in daughters in the nursing of parents during a long illness."[5] The clinical descriptions of neurologists of the latter nineteenth century show a similar appreciation of a psychosomatic approach as exemplified in the works of Hammond,[6] S. Weir Mitchell,[7] and Beard.[8] The readability and "aliveness" of these clinical descriptions contrast particularly with the more recent medical tradition of clinical reporting whether in the literature or at the "rounds" of our teaching institutions. As always, there are notable exceptions to this trend, as for example in the discussions by Hamman[9] and Weiss[10] in the fields of clinical practice and in psychophysiologic research, respectively. The outstanding clinician has never failed to appreciate the importance of human and emotional qualities in his patient and in the relations of physician and patient.

Two general developments, however, were necessary to the appearance of a more organized and more searching medical interest in the mind-body problem. The first development involved the striking progress within the last 70 years in the basic medical sciences, providing a rational approach to the therapy of disease processes. These developments are largely responsible for the multiplication of technical skills and involved technical procedures, the mastery of which requires prolonged postgraduate medical training and hence specialization within the field of clinical medicine itself. This specialization has been inevitable and necessary—and not less but more of it will occur in the future. Its undesirable side result is the now much talked of "fragmentation" of the patient. In the twentieth century there developed a tendency for patient and clinician to be swamped in these highly specialized techniques and instrumentations. Their impact on the institutional organization of medical practice—the hospital, the clinic, and the medical school—reflected these same problems. Concern developed[11] that the humane quality of clinical medicine and its representation in programs of medical education were disappearing under the onslaught of electrolyte patterns, acid-base balance, vector electrocardiography, heart-lung preparations, etc. These same developments in the basic sciences, however, were preparing a basis for a renewed and scientifically fruitful interest in these very difficulties. In the long run, the psychologically informed application of these technical advances in the basic sciences and in clinical research to the problems

of psychophysiology and psychiatry will probably produce more solid advances than will the magnificent flurry of concern within the last two decades about the "whole patient."

The second requirement necessary to the present developments in psychosomatic medicine derived from progress in the last 50 years within the field of psychiatry proper. The gradual recognition of psychiatry as deserving of equal place within the field of clinical medicine and in the medical school curriculum cannot be reviewed here.[12] The contributions of Adolf Meyer[13] and Sigmund Freud[14] are particularly relevant to development of a psychiatric point of view that both welcomed and required a continued interest in the physical, physiologic, and biologic bases of human behavior.

Meyer, in this country, continuously emphasized the need for integration of the data of all the special sciences in the study of man and in the understanding and treatment of psychiatric illness. This integration he exemplified in his own person. Although greatly interested in chemical studies and an outstanding neurologist and neuropathologist, he insisted on the independent validity of the field of the psychological. Meyer's point of view is amply conveyed in the title of a paper read in 1915 entitled "Objective Psychology or Psychobiology With Subordination of the Medically Useless Contrast of Mental and Physical."[15] His insistence on a "sane pluralism" in the approach to etiology spelled out a general orientation that has often been forgotten.

While Meyer was thus providing leadership within the field of academic psychiatry, Freud was developing the framework of psychoanalysis outside the field of academic psychiatry. The field of emotions and emotional conflicts and distress had for centuries been clearly indicated as a central focus of interest in the mind-body problem. Delineation by Freud of the existence of unconscious mental and emotional conflicts opened up an immense additional area of investigation in the understanding of mind-body relationships.[19] With this, however, psychoanalysis posed and continues to pose most difficult problems in the validation and communication of data involving unconscious mental processes.

These two broad developments, one within the field of the basic sciences, the other within the field of psychiatry, received particular impetus as a result of the problems posed to medicine and to physicians during the course of World War II.

This impetus derived from several sources. First of all was the need for collaboration by psychiatrists and other clinicians in the best understanding and management of the wounded and sick soldier.[16,17] In this connection, many physicians were exposed to the psychiatric and emotional problems of troops under their medical responsibility and had to handle these problems as best they could. Various branches of the armed forces set up training centers and courses for the nonpsychiatric physician which provided brief but intensive orientation in psychiatric and emotional problems of the returning soldier. These centers and the dynamically-oriented psychiatrists who taught in them provided another substantial influence of psychiatry within the broad field of medicine.[18]

VOL. 9 1959

It has been particularly since World War II that a more organized approach to the deeper understanding of the role of emotions and psychologic processes in evolving patterns of illness has taken place. This has been reflected in the evolution of liaison psychiatry and so-called psychosomatic services in various medical institutions and medical schools throughout the country. It has been also reflected in a growing membership and participation in medical societies and journals devoted to psychosomatic research. The future of these developments cannot be predicted and opinions differ as to the merits of some aspects of the present efforts.[20,21] Enough changes have taken place over the past 15 years to warrant formulation of an opinion as to the present trends and directions of these facts as they have influenced research, medical education, and clinical practice.

THE PSYCHOSOMATIC CONCEPT IN RESEARCH

Systematic presentations from various points of view of many facets of research in psychosomatic medicine are available.[22-28] Two brief and excellent critical reviews from a psychologist[29] and from psychiatrists[30] are well worth intensive study by the more interested person. Here a few of the principles and dilemmas of research in the psychosomatic field will be subject for comment.

One of the basic problems of psychosomatic research has been the development of a theoretical model of the human organism and its functioning that unified in some coherent and understandable way its state of relatedness to the external environment and to the internal complex of energy systems that maintain life. Bernard's concept[31] of the self-regulatory nature of internal energy systems in equilibrium with the external environment was later developed by Cannon into a conceptual scheme that provided a tremendous stimulus to psychophysiologic research.[32,33] A correlate of Cannon's homeostatic theory involved the conception of pathology as a more or less fixed maladaptive response to environmental challenge or stress. In this conception, the terms "psyche" and "soma" are arbitrary abstractions from a unitary situation of relatedness.

The role of emotions in Cannon's theory was of central importance. The subtitle of one of his summarizing works is "An Account of Recent Researches Into the Function of Emotional Excitement."[32] In it, Cannon examines and criticizes the James-Lange theory of emotions which held that emotions are the inner perception of physiologic change. Cannon's physiologic researches on emotional states were integrated into a broad biologic framework of behavior. Preparation for fight or flight in the service of survival of the organism and in pursuit of instinctive needs were the basis for a unified understanding of many chemical, physiologic, and biologic aspects of animal behavior. The similar physiologic findings in the emotional states of fear and rage and much of the functioning of the autonomic nervous system and of its higher hypothalamic regulatory centers could be understood in the light of fight or flight patterns of biologic response to environmental threat.[33]

While Cannon's conception of homeostasis has been subject to criticism,[34] his clear-cut and dramatic physiologic findings in various explicit emotional

states in animals have been the departure point for various types of subsequent investigation. In broad classification, these studies may be said to focus on three different aspects of the organism-environment continuum.

One group of studies is best represented by the work of Gantt, Richter, and Masserman. These studies, implemented chiefly through animal research, can be here only briefly indicated for further pursuit by the interested person. Gantt's studies, following Pavlov, have focused on the learned nature of anxiety and other dysjunctive modes of emotional experience in normal and pathologic physiologic responses of animals.[35-37] Richter's earlier work started from calculated interferences in the endocrinologic and other physiologic systems and examined the ensuing changes in behavioral patterns at the biologic level.[38] Masserman's summary and critique of the experimental approach to human and animal behavior and neurosis remains the most comprehensive treatise of this subject and this approach.[39] Masserman attempts a synthesis of data from various fields of animal experimental work and neurophysiology in particular, with psychoanalytic experience and formulations of human behavior. The recent admirable investigations of Mason, Brady, and co-workers of stress reactions in monkeys and in the experimental production of peptic ulcers in these animals is in the tradition of the approach mentioned.[40,41] Mirsky's simultaneous physiologic and psychologic evaluation of a group of soldiers in the course of basic training is another example of a similarly well-conceived approach to the study of the peptic ulcer syndrome in man.[42]

A second type of study deriving from Cannon's original impetus is best represented in the work on Harold Wolff and his collaborators. They have studied a wide variety of psychophysiologic disorders in humans and have emphasized the simultaneous direct observation of manifest and conscious emotional states in relation to various physiologic changes in the body. The prototype of this approach is embodied in the extensive study of their subject "Tom," whose gastric fistula presented a unique opportunity for repeated observations of such a correlated nature.[43]

A third type of study has emphasized the psychologic observation of personality function, chiefly through psychoanalytic study or psychoanalytically oriented clinical observations as these observations relate to the precipitation, perpetuation, and remission of such various psychophysiologic syndromes as peptic ulcer, ulcerative colitis, bronchial asthma, essential hypertension, and hyperthyroidism.[24,54] The essence of this approach involves the insistence that psychophysiologic investigations cannot be limited to conscious emotional states but must include an appreciation of unconscious mentation and emotional conflict. Alexander and French and their colleagues at the Chicago Institute for Psychoanalysis have been in the forefront of this type of study.[44] Thus, with continued reference to peptic ulcer as a characteristic psychosomatic syndrome, Alexander has held that the well-established hypersecretion of gastric juice in the patient with peptic ulcer can be understood as a physiologic expression of the passive wish to be fed. The latter in turn is an unconscious linkage between being loved and being fed, a linkage established in the earliest mother-infant experience.[45]

VOL. 9 1959

Alexander thus maintains that there is regular correlation between specific emotional states and specific patterns of physiologic response if the observer is trained to appreciate the role of unconscious processes. An excellent critique by Mendelson, Hirsch, and Webber has recently examined in detail some of the difficulties posed by many of the psychoanalytically based conceptions of psychophysiologic disorders.[30] Hamilton's concise and balanced presentation of "Psychosomatics" has some equally pertinent criticisms to make.[23] Simultaneous observations of physiologic data and of data from psychoanalytic treatment may answer some of the objections raised.[46-48]

It is abundantly clear that none of the three broad approaches outlined above are mutually exclusive. People do not come into life with repressed or unconscious conflicts. Psychoanalytic formulations imply a prior learned and relatively more conscious emotional linkage between the events and people of the "external" environment and the developing individual's inner registration of experience. This has led to particular interest in understanding the early infant-mother "symbiosis"[49] and possible constitutional differences in autonomic functioning that may provide the "anlage" for later psychophysiologic vulnerability.[50,51] None of these approaches has eliminated the necessity for consideration of inborn or genetic vulnerability as a substantial contributor to later somatic dysfunctions.

In spite of the central role assigned to the function of emotions in all theoretic approaches to psychosomatic illness, our validated knowledge of their role and function is still relatively undeveloped. The study of what we infer to be emotional reactions in animals must have sharp limitations in its applicability to man whose functioning is so vastly permeated by a self-created and transmitted environment in the form of culture and particularly the spoken and written word. Pain, fear, hunger, and rage may be the most significant painful and physiologically challenging emotions in the sphere of animal experience. For humans, there appears to be substantial evidence that such complex emotional states as hope, despair, elation, depression, and anxiety are more relevant to enduring physiologic consequences. Our understanding of these more complex affective states and their physiologic implications is just beginning.[52] It must be noted that the central role of emotions has led some to cast them in the role of "villains" in a psychosomatic drama, as pointed out by Whitehorn.[53] At worst, this view of emotions has implied a concept of normality and health as a type of stagnant tranquillity and sterile psychosocial conformity that risks nothing and loses nothing.

It has become increasingly clear that the study of any two variables is not in itself sufficient to the understanding of the complex conditions under which psychophysiologic symptoms make their appearance. The most frequent two variable studies have been those that correlate a *to the observer* significant change in the patient's life situations and coincident experience of anxiety and other dysphoric affect-states, with the onset and exacerbation of a pattern of organically manifested symptoms.[54] Such studies have varied enormously in their thoroughness and enduring value. At one extreme is what might be called the "hit-and-run" type of study. These reports have involved sketchy observations of data

from the interpersonal and intrapsychic fields of experience with casual and brief follow-up of patients. At the other extreme, studies such as those of Engel on patients with ulcerative colitis[55,56] have provided an exhaustive and comprehensive one-person synthesis of a significant correlation between life situations, affects induced in the patient, and the onset of bleeding from the bowel. As Engel points out, such studies, if validated by others, provide us with the fact that life situations and their personal meanings to the patient are one *necessary* cause in the onset of colitis and by no means exclude other necessary and contributing causes of the illness—such as constitutional factors, viruses, or as yet obscure allergic reactions.

The most substantial and solid results of the more recent concentrated research under the heading of psychosomatic medicine have their implications for workers in other fields. Thus, it is now clear that any investigation of a therapeutic intervention, whether by drugs, surgery, or psychotherapy, must, in its design, take full account of the therapeutic implications of the doctor-patient relationship. Similarly, in the so-called "psychosomatic" or "chronic" illnesses, the long-term follow-up of any substantial population in pursuit of an epidemiologic approach must take account of significant changes in the patient's life situation, if a correct understanding of the natural history of these illnesses is to be achieved. This is a difficult task but already two such studies, one in the field of rheumatoid arthritis[57] and the other in the field of hypertension, have been reported.[58]

In spite of the fact that it has been stated that the so-called psychosomatic illnesses are multiply-caused and that genetic, constitutional, and early life experience (the first 2 years) may be important, there persists the idea and possibility that in certain illnesses the emotional determinants are not only a *necessary* cause but constitute, of all the relevant etiologic factors, the *critical* cause in the appearance and remission of structurally manifested disability and pathology. Such an idea is implied in a statement by Kaufman: "The knowledge of unconscious motivation enables us to demonstrate the genesis of psychophysiological processes."[59] The existence in the American Psychiatric Association classification of disease of the term "psychophysiologic reaction" is a formal expression of the existence of such a possibility.[60] This idea has had a universal appeal, as evidenced in the statement attributed to the surgeon, Sir John Hunter, who, suffering from angina, was accustomed to say that "his life was in the hands of any rascal who chooses to annoy or tease him."[61]

If psychogenicity in the simple one-to-one sense were true, it should be possible to demonstrate the fact by adequate treatment through psychotherapy, psychoanalysis, or mood-altering drugs in sufficiently large groups of patients. This would require long-term follow-up of such a group of patients with similar follow-up of an adequate nontreated control group. The fact is that although substantial results have been reported from psychotherapy and psychoanalysis and from the use of tranquilizing drugs, there has not been adequate follow-up and comparison with control groups in such reports. This situation is no better and no worse, it must be said, than is the case with many reports of other therapy in these conditions.

VOL 9 195

The enthusiastic search for psychologic or emotional specificity in the form of character structure (the "ulcer personality"), in the form of specific constellations of unconscious conflict (Alexander), or in the forms of psychologic "profiles" has detracted attention from certain important clinical facts and areas of clinical ignorance.

The illnesses most frequently designated as "psychosomatic" are, by and large, chronic, relapsing, remitting, and often life-threatening illnesses. Delineation of the natural history of such illness is difficult of achievement and currently far from complete. Any degree of accuracy in prognosis or any evaluation of a therapuetic intervention depends on an accurate knowledge of the natural history of an illness. But in the psychosomatic illnesses, patient, clinician, and research physician labor under the fact that the only certainty in prognosis is uncertainty.

OL.
9
959

The illness myasthenia gravis, for example, is one which clearly involves "organic" and "emotional" factors in its prognosis.[62-64] Altered physiology of the neuromuscular junction is unequivocally present. But from the first, clinical descriptions and reports from patients have also implicated emotional stress as a significant factor in onset and exacerbation of symptoms.[65-67] The lack of meaning of the term "myasthenia gravis" in respect to prognosis is well illustrated in the fact that patients may die within 3 months after appearance of the first symptom while spontaneous remissions of as long as 16 years have been reported.[68] Of particular interest is the fact that in this illness the prognosis for survival is better after the third year of illness than before.[69] A possible explanation may well be that the individual's reaction to the illness is of major importance to longevity. How a psychosomatic disease is handled by different people and the implications of these differences for survival and for recovery has been surprisingly neglected in the recent literature.

There are similar wide variations in the course of patients with peptic ulcer, an illness in which genetic factors, early life experiences, current life situations, and character structure may all play a significant part.[70] At one extreme, the clinician sees patients who have suffered with organic pathology and symptoms of ulcer almost unremittingly since their late teens or early twenties. Their course has been punctuated by hemorrhages, by surgery, by postoperative symptoms, and by substantial disability in their living. At the other end of the spectrum, one sees patients who, in an entire lifetime, have suffered from one or two "punched out" episodes of peptic ulcer under conditions of unusual and severe stress (interpersonal stress, grave surgical operations, military combat, severe burns, etc.). Thus, it might be better to speak of the "peptic ulcers" or the "myasthenias gravis" in analogy with Bleuler's insistence on use of the term "the schizophrenias" rather than "schizophrenia."[71]

There is another aspect to the problem of the" natural history" of psychosomatic illness. This involves the number of people who suffer from peptic ulcer, hypertension, ulcerative colitis, rheumatoid arthritis, asthma, etc. Although the facts of the incidence and prevalence of these diseases are not known, it is clear from the most conservative estimates that any form of psychiatric treatment

will be available and feasible for an insignificant fraction of the populations suffering from these conditions.[72,73] Estimates of the prevalence of peptic ulcer, for example, vary from 1.5 to 10 per cent of the total population.[72,74] It is clear that the central clinical responsibility for care of these patients will always remain in the hands of the internist, the general practitioner, the gastroenterologist, the allergist, and sometimes the surgeon. Thus, it appears that the implementation of results derived from psychophysiologic research will find expression in clinical practice only insofar as the nonpsychiatric clinician can come to feel that they make sense and are of value to him in his work as clinician.

THE PSYCHOSOMATIC CONCEPT IN CLINICAL PRACTICE

Discussion of clinical management of the psychophysiologic reactions must start from the facts of the practicing physician's situation and the nature of the problem presented by patients suffering from these disorders. The delineation of ideal standards for clinical management of such patients has been a source of much discussion and, at times, exhortation. One might legitimately ask how much of this discussion and of the research previously outlined has been susceptible of implementation in care of patients and whether any trends are evident that have implications for the future.

Boiled down, the relevant questions are as follows. What does the psychiatrist have to offer his nonpsychiatric clinical colleague that helps in care of patients? How can the information be transmitted? Last, if psychiatric help *is* available to the clinician, does the so-called "psychosomatic" patient present the most pressing problems from the internist's point of view? Final answers to these questions are obviously not available, but some orienting data can be presented.

The informed psychiatrist will be able to expand his colleague's understanding of patients in two general areas. The first concerns the personal meanings to the patient of his experience with illness, disability, and particular symptoms. Reduction of uncertainty in the understanding of his patient's situation may often assist the clinican in the steady maintenance of interest and fullest use of his own creative capacities.[75] Second, the informed psychiatrist may deepen the clinician's understanding of his own significance and meaning to the patient. Reiser and his colleagues, in a study of patients with hypertension, found that a continued internist-patient relationship exerts as favorable an influence on prognosis as does more specifically psychotherapeutic effort. They emphasize the protective value of the sustained personal interest of a physician.[89] Their conclusions deserve further study in the long-term course and evolution of other psychosomatic illnesses. Frank has emphasized, as a result of his studies of the psychotherapeutic process, the important, nonspecific favorable influence on the patient of the expectancies of both patient and physician.[76,77] If it can be shown that the regularly spaced following of patients with psychophysiologic syndromes, regardless of waxing and waning of "complaints" would measurably improve prognosis, it might not be difficult for many physicians to incorporate these facts into their system of patient care.

VOL 9 195

Various techniques of transmission of information by the psychiatrist to other clinicians have been reported. Undergraduate and resident level teaching is one such avenue. Brief, intensive courses in psychiatry and the psychosomatic approach, given by groups of psychiatrists and psychoanalysts and addressed to the interested clinican, is another approach.[78] Continuing, weekly discussion groups involving a psychiatrist or analyst and a group of clinicians have been reported by Balint[79] and Stunkard.[80] The latter experiences deserve exploration and trial by others.

For the practicing physician, there has been no better opportunity than the establishment of a more or less continuing collaborative consulting channel with one or at most a few consulting psychiatrists. This is far easier of achievement by clinicians within a teaching center than by clinicians and psychiatrists in private practice.[81] For effective collaboration, the internist and psychiatrist must get to know each other in multiple situations of shared responsibility for patient care. The emotional and psychologic problems of the patient with serious and at times life-threatening organic disease require as much new interest and learning on the part of the psychiatrist as is required of the internist. The statement "Psychosomatic patients may die as a result of errors in psychological treatment"[82] contains the essence of the difference of the psychiatrist's situation in treatment with such patients. Colloborative exchanges are time-consuming and require sufficient interest on the part of the psychiatrist that he keep a part of his weekly schedule open for such consulting work. Prosaic as such facts may be, they constitute the backbone of a situation of real learning for practicing internist and psychiatrist alike.

Assuming the availability of psychiatric consultation to the clinician, there is the final question, which of all his "problem patients" does the clinician select for psychiatric consultation? Of these, how many will be patients suffering from the traditional psychosomatic syndromes?

Estimates vary on the incidence of "functional" illness in any consecutive series of patients presenting themselves to a physician. The minimum figure for purely functional illness is about 25 per cent of all patients who present themselves to an internist or outpatient facility while the maximum figure, which includes patients with organic findings but also significant emotional or psychological problems, is as high as 80 per cent.[9,83-86] A recent study of patients selected for psychiatric consultation by the resident staff of a medical service showed a far higher incidence of psychoneuroses, acute and chronic brain syndromes, and character disorders than psychophysiologic reactions among the patients selected.[87] The operational basis for psychiatric referrals is not and cannot be the presence of particular patterns of organic disease or the presence of functional complaints per se. The internist, left to himself, refers to the psychiatrist those patients who, by their behavior, promote undue and prolonged uncertainty in some aspect of his work as clinician.[88] As one surgeon put it, what the surgeon needs is a psychiatric "big brother" looking over his shoulder at certain times and with certain patients.

It may be added that the clinician has been subjected to a considerable measure of almost moralistic lecturing, in respect to the appreciation of the

psychologic and emotional factors in his patients and their illnesses. There has been, on the other hand, very little study or appreciation of what the internist does well and naturally that has psychotherapeutic effect. One may speculate that some of the excellent therapeutic results achieved by a great many internists with, let us say, their ulcer patients, comes about as a result of a simple and direct human interest which is communicated to patients very effectively. It is entirely possible that this may help a great many more patients than the more studied, "therapeutically" oriented and intellectual analysis of the patients' problems. The basic problem is to combine the one with the other, so that the more simple and effective human interest is not lost in the technique of interviewing and intellectual pursuit of psychodynamics. The discovery, support, and regularization of what the practicing physician does well is consistent with the principles of good pedagogy.

No discussion of the implications of the psychosomatic approach to clinical care of patients would be complete without some comment on the subject of "teamwork" and the "therapeutic team." The growth of liaison psychiatry is itself a reflection of the felt need for clinical collaboration in the care of patients. But patients require the interest and care of nurses, physical therapists, social workers, clinical psychologists, and many others—hence, the concept of the therapeutic team in which individuals collaborate to the end that the patient's health be restored.

The team concept brings up first of all the question of what is a "team" as distinct from a group of people each doing his job in taking care of a sick person.[90] At worst, teamwork has been used as window dressing to cover or obscure the problems of specialization and fragmentation of responsibility in the care of the patient. At best, it has designated a hardworking and collaborative effort, sometimes involving conferences, among people of special skills who are more devoted to the welfare of patients than to the maintenance of the illusion of their special importance.

In any consideration of teamwork the primary issue is the patient's reaction to and perception of the multiple caring-for people of hospital wards and clinics, whether they be called a "team" or not. The average person in a hospital who feels secure and "in good hands" is apt to mention first a feeling of serious interest and consideration on the part of hospital personnel. The shared values of the people on whom the patient depends are more important to the patient than the shared manipulative or technical skills implied in the word "teamwork."

The modes of functioning of various groups or "teams" in respect to patients in the hospital requires greater knowledge of the functioning of small groups.[91] Intensive study of interpersonal processes in psychiatric clinics and hospitals has begun to provide more realistic data.[92,93] If the doctor-patient relationship is an important life-line for the morale and perhaps for the survival of the patient with psychosomatic illness, we must be careful not to rationalize the conflicts and contradictions between the welfare of patients and the organizational necessities of our hospitals and clinics. One thing is certain; the values of human one-to-one relatedness cannot be obscured or forgotten.

VOL 9 195

THE PSYCHOSOMATIC CONCEPT IN MEDICAL EDUCATION

Psychosomatic medicine is but one manifestation of what Himsworth has described as "the need to find a concept which will enable us to organize the different branches of medical knowledge so as to preserve the intellectual unity of the whole."[94] In the last 15 years, medical education has again been subjected to scrutiny and revision in the light of this need. Major attempts at better integration of teaching in the preclinical sciences as well as in the clinical years have been tried at different medical schools.[95-98] Physicians interested in psychosomatic medicine have participated in these general developments. They have been particularly concerned with the integration of the facts of personality development and psychopathology with the medical student's understanding of physical illness and convalescence. Teaching of a psychologically oriented approach to clinical care has taken place on medical wards, in various forms of medical-psychiatric rounds, and, more informally, in the course of psychiatric consultations.

OL.
9
959

Reports of experience with such teaching programs have been made from various teaching institutions.[99-102] Engel makes the challenging suggestion that the teacher of such an integrated approach should personify it to the medical student by virtue of being equally at home, as clinician, in the fields of psychiatry and internal medicine. This would be consistent with Himsworth's timely reminder that "Integration of knowledge occurs within a man, not between men."[94] This goal, however, is probably not attainable except by the unusually gifted person. Various forms of collaboration in teaching between the psychiatrist and internist appear to offer a more attainable goal. This also has the virtue of exposing the psychiatrist to the vicissitudes and satisfactions of collaborative clinical work.

Evaluation of efforts to teach the basic conceptions of a "psychosomatic" approach to clinical work has often overlooked the fact that there are good students and poor students. The most assiduous integrative teaching efforts will not make a good student out of a poor one. In one such teaching program there has been opportunity over a 6-year period to compare the grades assigned to senior medical students by liaison psychiatrists with grades assigned to the same students by the medical assistant resident, the visiting internist on the medical ward, and the professor of medicine. With rare exceptions, the grades assigned to students from all four sources have been in general agreement. In these observations, the fourth year student is either good or poor in all phases of his clinical work including the evaluation of psychosocial factors in his patient's illness and convalescence.[103]

These observations suggest that the good medical student is capable of synthesizing his knowledge of people and his more systematically learned knowledge of personality functions into clinical work. Given a hard working and dynamically oriented program of undergraduate teaching, the critical period where this initial receptivity and grasp are either consolidated or pushed aside by other values is the period of internship and residency training.

It is notoriously difficult for the house officer to maintain consistent interest in the "patient as a person" on busy and competitive surgical and medical wards.

The cry of "too busy" is not merely a rationalization for disinterest or an expression of values transmitted from the chief of service and the chief resident (although the latter are important), it is the basic issue of life or death that challenges and pushes the resident physician in the direction of mastering technique and developing personal excellence. In this situation, the chief opportunity for continued psychiatric education of the resident physician lies in those circumstances where disturbed behavior of medical or surgical patients intrudes itself with unmistakable vigor on the busy resident physician. At such a point the liaison psychiatrist's services in collaborative care of the patient can come as genuinely valuable experience for the resident physician. As such it is also likely to be a genuine learning experience.

Expansion of the availability of the liaison psychiatrist to all the resident services of our teaching hospitals as exemplified in the Mount Sinai program would appear to be a logical next step in the integration of psychiatry with medicine.[102]

VOL. 9 1959

DISCUSSION

The concept of psychosomatic medicine presented here has emphasized that it is one aspect of a general search, in clinical medicine and in the basic medical sciences, to find broad operational formulations of the "situation" of man. The psychosomatic approach seeks to comprehend and unify the various partial views of man contained in the data and techniques of the more quantitative preclinical sciences, in the social sciences, and in the humanities. In philosophical terms, this could be described as the search for unity in the midst of impressive and bewildering diversity.

If this is a problem that confronts all of medicine and, indeed, all of science,[104] is there any particular value to be claimed for focusing medical interest and research under the heading of "psychosomatic medicine?" Most simply, if this is everybody's problem, what value is there in having a particular name, a society, or journals devoted to these ends? Is there not some danger in labeling something as psychosomatic—research, clinical work, or teaching—that we come to feel, by verbal magic, that we have done something or changed something?

It is certainly evident that psychosomatic medicine cannot escape the dilemmas and conflicts which it has been so instrumental in pointing out. There is already a growing tendency in the literature of psychosomatic medicine to discount clinical studies in favor of physiologic data. A recent excellent study by Imboden, Canter, Cluff, and Trever, showing that the syndrome "chronic brucellosis" is essentially a neurosis, is an excellent illustration of the fact that systematic and psychologically informed clinical investigations are not out of date.[105,106]

The evidence for the potential enduring usefulness of the psychosomatic concept lies in the similarity of the tasks and goals that now confront the psychiatrist and the internist—in clinical practice, in research, and in medical education. A major portion of the serious problems that confront the internist concerns chronic, relapsing illnesses of uncertain prognosis and multiple etiology. In these illnesses the continuous interplay of influence between the

patient and the human environment in all its aspects is of central importance in the genesis, perpetuation, and resolutions of patterns of disease. These statements could as well describe the problems confronting the psychiatrist in respect to psychiatric illness—the neuroses and psychoses. Research and treatment in both fields require collaboration between physiologists, clinicians, nurses, epidemiologists, clinical psychologists, and social scientists. Above all, the personal dilemmas and satisfactions of the internist and the psychiatrist are becoming more similar than different. Absence of cure, the slow nature of convalescence, the possibility of future relapse, and the important influence of the "physician-as-a-person" are experiences common to the clinician in both fields. The shared necessities of theoretical problems and of clinical experience on the part of internist and psychiatrist provide a substantial basis for expectation of greater collaboration in the future.

OL.
9
959

SUMMARY

An outline of the historical background and present directions of the concept of psychosomatic medicine has been presented. Brief evaluation has been made of the implications of the psychosomatic concept for research, for clinical practice, and for medical education. Pertinent literature has been cited as a guide for further study by the interested physician.

REFERENCES

1. Parrish, J.: An Inaugural Dissertation on the Influence of the Passions Upon the Body in the Production and Cure of Diseases, Philadelphia, 1805, Kimber, Conrad & Co.
2. Brigham, A.: Remarks on the Influence of Mental Cultivations Upon Health, Hartford, 1832, F. J. Huntington.
3. Major, R. H.: Classic Descriptions of Disease, Springfield, Ill., 1945, Charles C Thomas, Publisher.
4. Allbutt, T. C. (ed.): A System of Medicine, New York, 1899, The Macmillan Co.
5. Garrod, A. B.: A Treatise on Gout and Rheumatic Gout (Rheumatoid Arthritis), London, 1876, ed. 3, Longmans, Green & Co.
6. Hammond, W. A.: On Certain Conditions of Nervous Derangement, New York, 1883, G. P. Putnam's Sons.
7. Mitchell, S. W.: Doctor and Patient, Philadelphia, 1888, J. B. Lippincott Co.
8. Beard, G. M.: American Nervousness, Its Causes and Consequences, New York, 1881, G. P. Putnam's Sons.
9. Hamman, L.: The Relationship of Psychiatry to Internal Medicine, Ment. Hyg. **23**:177, 1939.
10. Weiss, S.: The Interaction Between Emotional States and the Cardiovascular System in Health and Disease, Libman Anniversary Volumes, Vol. III, New York, 1932, The International Press, p. 1181.
11. Robinson, G. C.: The Patient as a Person, New York, 1939, The Commonwealth Fund.
12. One Hundred Years of American Psychiatry, 1844-1944, New York, 1944, Columbia University Press.
13. Meyer, A.: Psychobiology; A Science of Man, Springfield, Ill., 1957, Charles C Thomas, Publisher.
14. Jones, E.: The Life and Work of Sigmund Freud, 3 Vols., New York, 1953-1957, Basic Books, Inc.
15. Meyer, A.: Objective Psychology or Psychobiology With Subordination of the Medically Useless Contrast of Mental and Physical, J.A.M.A. **65**:860, 1915.
16. Tumulty, P. A., Nichols, E., Singewald, M. L., and Lidz, T.: Investigation of Effects of Recurrent Malaria; Organic and Psychological Analysis of Fifty Soldiers, Medicine **25**:17, 1946.
17. Frank, J. D.: Emotional Reactions of American Soldiers to an Unfamiliar Disease, Am. J. Psychiat. **102**:631, 1946.
18. Grinker, R. R., and Spiegel, J. P.: Men Under Stress, Philadelphia, 1945, The Blakiston Co.

19. Binger, C. A. L.: Freud and Medicine, New England J. Med. **256**:297, 1957.
20. Grinker, R. R.: 12th Annual Report, Institute for Psychosomatic and Psychiatric Research and Training, Michael Reese Hospital, p. 17, 1957.
21. Kaufman, M. R.: The Role of the Psychiatrist in a General Hospital, Psych. Quart. **27**:367, 1953.
22. Grinker, R. R.: Psychosomatic Research, New York, 1953, W. W. Norton & Co., Inc.
23. Hamilton, M.: Psychosomatics, New York, 1955, John Wiley & Sons, Inc.
24. Wittkower, E. D., and Cleghorn, R. A. (ed.): Recent Developments in Psychosomatic Medicine, Philadelphia, 1954, J. B. Lippincott Co.
25. O'Neill, D.: Modern Trends in Psychosomatic Medicine, London, 1955, Paul B. Hoeber, Inc.
26. Weiss, E., and English, O. S.: Psychosomatic Medicine, Philadelphia, 1957, ed. 3, W. B. Saunders Co.
27. Dunbar, F.: Mind and Body: Psychosomatic Medicine, New York, 1955, Random House.
28. Deutsch, F. (ed.): The Psychosomatic Concept in Psychoanalysis, New York, 1953, International University Press.
29. Brown, F.: A Clinical Psychologist's Perspective on Research in Psychosomatic Medicine, Psychosom. Med. **20**:174, 1958.
30. Mendelson, M., Hirsch, S., and Webber, C. S.: A Critical Examination of Some Recent Theoretical Models in Psychosomatic Medicine, Psychosom. Med. **18**:363, 1956.
31. Bernard, C.: An Introduction to the Study of Experimental Medicine, New York, 1927, The Macmillan Co.
32. Cannon, W. B.: Bodily Changes in Hunger, Fear and Rage, New York, 1936, D. Appleton-Century Co., Inc.
33. Cannon, W. B.: The Wisdom of the Body, New York, 1939, W. W. Norton & Co., Inc.
34. Engel, G.: Selection of Clinical Material in Psychosomatic Research, The Need for a New Physiology, Psychosom. Med. **16**:368, 1954.
35. Gantt, W. H.: An Experimental Approach to Psychiatry, Am. J. Psychiat. **92**:1007, 1936.
36. Gantt, W. H.: The Conditional Reflex, Progress in Neurology and Psychiatry, New York, 1946, Grune & Stratton, Inc., p. 113.
37. Gantt, W. H.: Experimental Basis for Neurotic Behavior, New York, 1944, Paul B. Hoeber, Inc., p. 212.
38. Richter, C. P.: Total Self-Regulatory Functions in Animals and Human Beings, Harvey Lectures **38**:63, 1942-1943.
39. Masserman, J. H.: Behavior and Neurosis, Chicago, 1943, University of Chicago Press.
40. Porter, R. W., Brady, J. V., Conrad, D., Mason, J. W., Galambos, R. ,and Rioch, D. McK.: Some Experimental Observations on Gastrointestinal Lesions in Behaviorally-Conditioned Monkeys, Psychosom. Med. **20**:379, 1958.
41. Brady, J. V.: Ulcers in Executive Monkeys, Scientific Am. **199**:95, 1958.
42. Weiner, H., Thaler, M., Reiser, M. F., and Mirsky, I. A.: Etiology of Duodenal Ulcer, I. Relation of Specific Psychological Characteristics to Rate of Gastric Secretion (Serum Pepsinogen), Psychosom. Med. **19**:1, 1957.
43. Wolf, S., and Wolff, H. G.: Human Gastric Function, New York, 1947, Oxford University Press.
44. Alexander, F., and French, T. M.: Studies in Psychosomatic Medicine, New York, 1948, Ronald Press.
45. Alexander, F., and Szasz, T. S.: The Psychosomatic Approach in Medicine, Chap. XII, Dynamic Psychiatry, Alexander, F., and Ross, H. (ed.), Chicago, 1952, University of Chicago Press, p. 369.
46. Moses, L., Daniels, G. E., and Nicherson, J. L.: Psychogenic Factors in Essential Hypertension, Methodology and Preliminary Report, Psychosom. Med. **18**:471, 1956.
47. Margolin, S. G.: The Behavior of the Stomach During Psychoanalysis, Psychoanal. Quart. **20**:349, 1951.
48. Alexander, F.: Unexplored Areas in Psychoanalytic Theory, Behavioural Science **3**:293, 1958.
49. Benedek, T.: The Psychosomatic Implication of the Primary Unit: Mother-Child, Am. J. Orthopsych. **19**:642, 1949.
50. Richmond, J. B., and Lustman, S. L.: Autonomic Functions in the Neonate: I. Implications for Psychosomatic Theory, Psychosom. Med. **17**:269, 1955.
51. Lacy, J. I., and Vanlehn, R.: Differential Emphasis in Somatic Response to Stress, Psychosom. Med. **14**:71, 1952.
52. Rapaport, D.: Emotions and Memory, New York, 1950, International University Press.
53. Whitehorn, J. C.: Physiological Changes in Emotional States, A. Res. Nerv. & Ment. Dis. Proc. **19**:256, 1939.
54. Wolff, H. G., Wolf, S. G., and Hare, C. C. (Ed. Board): Life Stress and Bodily Disease, Res. Pub. A. Nerv. & Ment. Dis., Baltimore, 1950, The Williams & Wilkins Co.
55. Engel, G. L.: Studies in Ulcerative Colitis, II. The Nature of Somatic Processes and the Adequacy of Psychosomatic Hypotheses, Am. J. Med. **16**:416, 1954.

VOL
9
195

56. Engel, G. L.: Studies in Ulcerative Colitis, III. The Nature of the Psychologic Processes: A Review and a Formulation, Am. J. Med. **19**:231, 1955.
57. King, S. H., and Cobb, S.: Psychosocial Factors in the Epidemiology of Rheumatoid Arthritis, J. CHRON. DIS. **7**:466, 1958.
58. Clark, E. G., Glock, C. Y., and Vought, R. L.: Studies in Hypertension, I. An Epidemiologic Approach to the Study of the Natural History of Essential Hypertension, J. CHRON. DIS. **4**:231, 1956.
59. Kaufman, M. R.: An Integration of the Psychosomatic Viewpoint in Medicine, J. Mt. Sinai Hosp. **20**:247, 1953.
60. The Committee on Nomenclature and Statistics of the A.P.A.: Diagnostic and Statistical Manual, Mental Disorders, Washington D. C., 1952, Seventh Printing, A.P.A. Mental Hosp. Service.
61. Palmer, J. (ed.): The Life of Sir John Hunter, F. R. S. **1**:119, 1835.
62. Meyer, E.: Personality Issues in Myasthenia Gravis, paper read at meeting Am. Psychosom. Soc., April 28, 1951.
63. Meyer, E.: Categories of Data in Psychological Study of Myasthenia Gravis, paper read at Rochester, N. Y., Jan. 17, 1954.
64. Harvey, A. M.: Some Preliminary Observations on Clinical Course of Myasthenia Gravis Before and After Thymectomy, Bull. New York Acad. Med. **24**:505, 1948.
65. Wheaton, J. L.: A Case of Asthenic Bulbar Paralysis, Boston Med. & Surg. J. **138**:54, 1898.
66. Campbell, H., and Braunwell, E.: Myasthenia Gravis, Brain **23**:277, 1900.
67. Viets, H. R.: A Historical Review of Myasthenia Gravis From 1672 to 1900, J.A.M.A. **153**:1273, 1953.
68. Grob, D.: Course and Management of Myasthenia Gravis, J.A.M.A. **153**:529, 1953.
69. Grob, D.: Myasthenia Gravis, J. CHRON. DIS. **8**:536, 1958.
70. Ivy, A. C., Grossman, M. I., and Bachrach, W. H.: Psychosomatic Etiology of Peptic Ulcer, Chap. 18, *in* Peptic Ulcer, Philadelphia, 1950, The Blakiston Co., p. 659.
71. Bleuler, M.: Dementia Praecox; or, The Group of Schizophrenias, New York, 1950, International University Press.
72. Collins, S. D., Trantham, K. S., and Lehmann, J. L.: Sickness Experience in Selected Areas of the U. S., Public Health Monograph No. 25, 1955.
73. Commission of Chronic Illness, Chronic Illness in the U. S., Vol. 4, Chronic Illness in a Large City, The Baltimore Study, Cambridge, 1957, Harvard University Press.
74. Jordan, S.: Problems of Peptic Ulcer, Maryland M. J. **7**:388, 1958.
75. Meyer, E.: Acute Psychologic Disturbances in the Course of Hospitalization of Patients With Chronic Illness, J. CHRON. DIS. **3**:111, 1956.
76. Frank, J. D.: The Dynamics of the Psychotherapeutic Relationship, Psychiatry. To be published.
77. Frank, J. D.: Some Effects of Expectancy and Influence in Psychotherapy, Progress in Psychotherapy. III. New York, 1958, Grune & Stratton, Inc., p. 27.
78. Wilmer, H. L. (ed.): Teaching Psychotherapeutic Medicine, New York, 1947, The Commonwealth Fund.
79. Balint, M.: The Doctors, His Patient and the Illness, New York, 1956, International University Press.
80. Stunkard, A. J.: An Experiment in Teaching Psychotherapy, J. Med. Ed. **32**:795, 1957.
81. Muncie, W.: Medical-Psychiatric Collaboration, Maryland M. J. **3**:331, 1954.
82. Report of the 1952 Conference on Psychiatric Education, The Psychiatrist, His Training and Development, A.P.A., Washington, D. C., 1953.
83. Roberts, B. H., and Norton, N. M.: The Prevalence of Psychiatric Illness in a Medical Out-Patient Clinic, New England J. Med. **246**:82, 1952.
84. Allan, F. N., and Kaufman, M.: Nervous Factors in General Practice, J.A.M.A. **138**:1135, 1948.
85. Lewis, B. I.: A Psychomedical Survey of a Private Out-Patient Clinic in a University Hospital, Am. J. Med. **14**:586, 1953.
86. Kaufman, M. R., and Bernstein, S.: A Psychiatric Evaluation of the Problem Patient, J.A.M.A. **163**:108, 1957.
87. Meyer, E., and Mendelson, M.: The Psychiatric Consultation in Post-Graduate Teaching. To be published.
88. Meyer, E., and Mendelson, M.: The Psychiatric Consultation With Patients on Medical And Surgical Wards; Patterns and Process. To be published.
89. Reiser, M. F., Brust, A. A., Shapiro, A. P., Baker, H. M., Ranschoff, W., and Ferris, E. B.: Life Situations, Emotions and the Course of Patients With Arterial Hypertension, Chap. LVII, Life Stress and Bodily Disease, Res. Pub. A. Nerv. & Ment. Dis., Baltimore, 1950, The Williams & Wilkins Co., p. 870.
90. Harrower, M. (ed.): Medical and Psychological Teamwork in the Care of the Chronically Ill, Springfield, Ill., 1955, Charles C Thomas, Publisher.
91. Hare, A. P., Borgatta, E. F., and Bales, R. F.: Small Groups, Studies in Social Interaction, New York, 1955, Alfred A. Knopf, Inc.

OL.
9
959

92. Stanton, A. F., and Schwartz, M. S.: The Mental Hospital, New York, 1954, Basic Books, Inc.
93. Caudill, W.: The Psychiatric Hospital as a Small Society, Cambridge, 1958, Harvard University Press.
94. Himsworth, H.: The Integration of Medicine, Brit. M. J. **2**:217, 1955.
95. Symposium: Experiments in Medical Education, J. Med. Ed. **31**:515, 1956.
96. Comroe, J. H., Jr., Drabkin, D. L., Ehrich, W. E., Flick, J. A., Kety, S. S., and Krogman, W. M.: Integrated Teaching in the Basic Sciences, J.A.M.A. **147**:1221, 1951.
97. Whitehorn, J. C.: Basic Psychiatry in Medical Practice, J.A.M.A. **148**:329, 1952.
98. Romano, J.: Basic Orientation and Education of the Medical Student, J.A.M.A. **143**:409, 1950.
99. Fox, H. M.: Teaching Integrated Medicine, Report of a Five-Year Experiment at Peter Bent Brigham Hospital, J. Med. Ed. **26**:421, 1951.
100. Engel, G. L., Greene, W. A., Jr., Reichsman, F., Schmale, A., and Ashenburg, N.: A Graduate and Undergraduate Teaching Program on the Psychological Aspects of Medicine, J. Med. Ed. **32**:859, 1957.
101. Lidz, T., and Fleck, S.: Integration of Medical and Psychiatric Methods and Objectives on a Medical Service, Psychosom. Med. **12**:103, 1950.
102. Kaufman, M. R., and Margolin, S. G.: Theory and Practice of Psychosomatic Medicine in a General Hospital, M. Clin. North America **32**:611, 1948.
103. Meyer, E.: Personal observation, 1951-1957.
104. Bronowski, J.: Science and Human Values, New York, 1956, Julian Messner, Inc.
105. Cluff, L., Trever, R., Imboden, J. B., and Canter, A.: Brucellosis. II. Medical Aspects of Delayed Convalescence, A.M.A. Arch. Int. Med. In press.
106. Imboden, J. B., Canter, A., Cluff, L., and Trever, R.: Brucellosis. III. Psychologic Aspects of Delayed Convalescence, A.M.A. Arch. Int. Med. In press.

VOL
9
195

MANAGEMENT AND TREATMENT OF DRUG ADDICTION

KENNETH W. CHAPMAN, M.D.,*
WASHINGTON, D. C.

(Received for publication Dec. 1, 1958)

VOL.
9
1959

OF THE clinical problems faced by the physician, be he psychiatrist, internist, or surgeon, probably one of the most frustrating is that of the treatment of the narcotic drug addict. This is understandable since there are so many variables involved. Unless one has had broad and intimate experience with the addict, he is confused not only by the paradoxes of the patient but also by the paradoxes in the recommended treatments. There are more "expert" opinions on treatment of the drug addict which are based on a "one-time experience" than in most clinical problems. Furthermore, the physician has been conditioned since his medical school days to steer clear of the addict. His attitude is further reinforced by the strong taboos in our Western culture toward the addict. Fear that he will bring opprobrium upon himself by mismanagement, combined with a lack of understanding of his ethical and legal rights to treat the addict, also causes him to shun this responsibility.

At the outset a review of the magnitude of the problem provides some perspective and a framework within which to view the treatment and management of the drug addict. The best estimates, those of the Bureau of Narcotics, U. S. Treasury Department, give a maximum figure of 60,000 addicts in the United States. Of these a great many will not present themselves regularly to physicians for either drugs or treatment. They will for the most part get their drugs from the black market and resort to obtaining drugs illegally from legal sources only when the black market drugs are in short supply. The majority of these individuals are more or less closely identified sooner or later with some form of antisocial or criminal activity. The smaller group who regularly confront the physician are, for the most part, those addicts whose addiction is medically related, that is, their addiction can be traced to some variety of illness, physical or psychic for which they have at one time received drugs legitimately. Among this group are altogether too many physicians and persons associated with the practice of medicine, such as nurses, laboratory technicians, and other hospital personnel. The estimate of the Bureau of Narcotics that one physician out of every one hundred is an addict is a matter of real concern.

*Associate Director, Clinical Center, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare; formerly Consultant on Narcotic Drug Addiction, National Institute of Mental Health.

Accepting the most pessimistic point of view, however, the problem is not of the magnitude of alcoholism nor does it destroy as many people either directly or indirectly. This is not to condone addiction, but to acknowledge it for what it is—a limited but very complex problem, doubly complex because of the concurrent illegal activity related to addiction and the effect on society of the resultant depredations to obtain money to buy the drugs at high cost. Suggestions for eradication or amelioration of the social problems resulting from drug addiction are covered more extensively elsewhere.[1-3]

What, then, is the nature of addiction? We will deal mainly with narcotic drugs, although a necessary part of knowledge of the treatment of addicts requires some discussion of the barbiturates, cocaine, marihuana, and the "tranquilizers."

Narcotic drug addition is a physiologic phenomenon related to the pharmacologic action of the drug. This has been demonstrated repeatedly. There are a number of theories described more fully elsewhere as are the findings supporting this statement.[4] The theory generally accepted is that of Himmelsbach[5]; namely, that narcotic drugs alter the physical chemistry of the neuronal structures. The resultant adaptation is the phenomenon of tolerance. When drugs are withdrawn a reversal occurs of the adaptation, expressed in disturbances of the nervous system, such as involuntary muscle spasms, goose flesh, rise in blood pressure, temperature rise, vomiting, diarrhea, and weight loss. This is seen clinically as the "abstinence syndrome."

Narcotic drug addiction has been variously defined and redefined for legal and/or pharmacologic purposes. In its essence, addiction includes the repetitive and compulsive use of drugs of the opiate series—morphine, heroin, dilaudid, and opiate-like synthetics such as meperidine, methadone, and levodromoran, to name a few—to the detriment of self and society. It is characterized by a syndrome described many years ago and scientifically codified by Himmelsbach, Small, Kolb, and others.

The repetitive use of one-fourth grain of morphine or of any other narcotic at an equivalent dosage level six or more times a day over a period of 3 weeks will result in a phenomenon known as physical dependence. This can occur in anyone whether or not he is an addict. At the end of this period sudden abstinence will produce the second phenomenon, that of withdrawal, a well-defined syndrome that can be objectively evaluated. The severity of the abstinence or the withdrawal syndrome will in some degree be related to the dosage level and the frequency of administration.

Characteristic of the reaction of the body to narcotic drugs is the development of tolerance to the effects of the drug, so that increasing amounts are needed to produce the same initial effects, either relief of pain or anticipation of pain.

Dosage levels as high as 78 grains of morphine have been given intravenously to a tolerant addict in 16 hours. By and large, however, it has been empirically noted by a number of observers that many addicts with easy access to drugs will level off at about 10 to 15 grains a day. Beyond that point increasing dosages fail to have any effect on recapturing the initial effects, although there is parodoxically no tolerance developed to the "orgastic" vasomotor type of effects.

VOL 9 195

A less readily understood phenomenon has been alluded to the psychic effect. Habituation is another name for the psychic effect which has its counterpart in the use of a number of other nonaddicting compounds, such as tobacco smoking or coffee drinking. The habitué in this instance does not feel easy unless he smokes or consumes a lot of coffee. Yet if necessary he can abstain with no objective physical aftermaths, although he may experience real emotional discomfort.

This phenomenon, psychic dependence, is one of the most important factors in drug addition. It is an early warning to the physician prescribing drugs when he finds the patient exhibiting overly favorable relief to narcotic administration in an illness not usually too painful or demanding amounts of the drug exceeding the usual need in similar circumstances.

OL.
9
959

Physical dependence and the withdrawal syndrome are usually poorly estimated by the inexperienced physician. He looks for the dramatic hysterical screaming, groaning, epileptiform seizures as luridly described by the misinformed and sensation-seeking and fails to recognize the somewhat more moderate symptoms and signs. A heavily addicted person abruptly withdrawn from narcotics customarily will curl up in a corner under a blanket, vomit copiously, and piteously beg for a "shot" to relieve his misery. He does not shout and scream. He will not die if he is in fair health and has no serious cardiac, respiratory, or kidney defect. The usual symptoms of the more lightly addicted person have their onset about 6 to 8 hours after his last dose and symptomatically appear like an early case of influenza. In either case, the major withdrawal symptoms subside within 72 to 96 hours. In the experience of most treatment centers for addicts at the present time, it is unusual to encounter heavy addictions. Lest someone suspect me of being a sadist, let me hasten to add that abrupt withdrawal is not the proper way to manage the abstinence syndrome. More will be said of that later, however.

In regard to addiction to other drugs, Isbell[6] has demonstrated conclusively that the repetitive daily consumption over a period of weeks of 10 or more grains of a barbiturate will produce physical dependence to that drug. Abrupt withdrawal produces epileptiform seizures within a few days. Continued abstinence is followed in some cases by a psychosis within a week to 10 days. The use of barbiturates is insidious and thereby doubly dangerous compared to narcotics. Continual use produces a clouded sensorium, mild ataxias, and loss of memory. The higher the dosage (an easy accomplishment as the user fails to recall when he took the last dose) the greater are these defects.

Withdrawal treatment of barbiturate addiction preferably should be carried out in a hospital. It is accomplished by gradual reduction in dosage starting with 3 to 6 grains orally every 6 hours for a day or two to the point of mild intoxication (stabilization). This regime, followed by gradual withdrawal by reduction in dosage over a period of 2 to 4 weeks, will avoid the symptoms mentioned.

Many narcotic addicts use barbiturates as a substitute for narcotics or to supplement a meager supply even though the barbiturates do not have similar

pharmacologic action. It is important to obtain a careful history to detect barbiturate addiction before treating the patient for narcotic addiction since each form of dependency requires simultaneous and different treatment.

The other addicting drugs may be dismissed as a group. Addiction to cocaine, once a commonly used drug, is rarely seen at present in the United States. It is not an addicting drug in the true sense. There is no development of tolerance or physical dependence, hence no withdrawal phenomena. It is a stimulant to the nervous system.

While persons have been known to take relatively huge doses of drugs in the amphetamine group, there is a real question in the minds of most observers in the United States whether there is a true tolerance, physical dependence, or abstinence syndrome to these drugs.

Marihuana is another nonaddicting drug for which tolerance, physical dependence, and abstinence syndrome do not occur. It initially stimulates the nervous system, then depresses it.

VOL. 9 1959

ETIOLOGIC FACTORS

A number of students of drug addiction have felt that there are certain physiologic factors inherent in the make-up of addicts which predispose them to addiction. Efforts to demonstrate such predilections remain inconclusive.

Those who have studied narcotic addicts extensively and intensively conclude that the major single factor in addiction is the psychologic make-up of the individual.

While a typical addict personality has not been identified, there are certain common characteristics which constantly appear in studies of addicts. Invariably addicts express a pleasure in the use of drugs. The language used to convey such expressions is vague and variable—"feeling normal," "getting a boot or a bang," "it gets me right here" (pointing to the lower abdomen), "it's like sexual intercourse only better and different."

To observe an addict during anticipation and receipt of a dose of drugs intravenously leaves no doubt in the mind of the observer that he undergoes an extremely pleasurable experience. Interestingly, the effects produce none of the obvious signs associated with the action of alcoholic beverages. There is no ataxia, slurring of speech, or altering of the sensorium. Although he tends to want to sit and enjoy the effects of the drugs, the addict willingly performs tasks with efficiency and carries on a conversation at his normal level of ability.

These general observations hold without regard to the core of the personality structure. They are found in the aggressive antisocial, in the passive dependent, in the severely neurotic, or the borderline psychotic.

KINDS OF PEOPLE WHO BECOME ADDICTS

There are, to be sure, certain statistically predominant diagnostic groups among addicts but also a sufficient number of groups to negate the generality of an "addict personality."

The types most commonly found included the passive dependent individuals with weak ego strength who have never made a satisfactory adjustment to the exigencies of everyday living. A variant in this area is the borderline psychotic who has difficulty with reality. Drugs simplify their struggle and appear to aid their adjustment.

Certain social factors appear influential in determining addiction. The addict with a dependent personality structure may come from a social group in which addiction is acceptable and differs only in terms of his use of narcotics from the dependent personality who comes from a cultural subgroup in which addiction is taboo but "neurotic" complaints in one guise or another are commonplace and allowed. The ill-defined back aches and "liver and stomach troubles" are but verbal adaptations to basic neurotic problems for which drugs also provide unfortunate solutions.

Chein and his associates[7-9] have recently completed a 5-year study of addiction among the residents of certain delinquent neighborhoods in New York. It would appear that even in these less desirable subcultures there are degrees of acceptance of addiction. Some strongly asocial gangs will not tolerate addict members, but others will. While the leaders may take drugs occasionally, they do not become addicted. Experimentation with drugs is permissible, but the person who becomes addicted is considered a weakling. Some groups will tolerate a few addict members and treat them in a protective fashion.

Present-day statistics also show a predominence of addicts among certain racial groups. The Negro, Mexican-American, and Puerto Rican-American seem to have a greater tendency toward drug addiction than other racial groups. This may be an overly weighted figure because of the closed scrutiny of law enforcement since most come from groups with a high incidence of delinquency. Not subject to such scrutiny are the well-protected white people, of both small and large communities, who obtain drugs legally from physicians for a variety of reasons, many of which are not wholly defensible. How many of these addicts, unknown from a statistical point of view, exist is not possible to determine. My own casual observations, based on conversations with physicians all over the United States lead me to conclude that there is a considerable number who are never detected. The few that do become evident do so through the loss of the sponsoring physician by death or other separation, leaving the addict with no resource, aside from trying to get more drugs from several physicians, or through law violation by forging prescriptions.

Many psychodynamic formulations have been attempted to explain the psychologic problems of addiction.[10] In regard to the family and developmental history post hoc studies have often revealed that the addict had a weak or absent father figure, and an indulgent, and at the same time, rejecting mother. People become solely objects for personal gratification. Since reality prevents fulfillment of all his wishes, he reacts when frustrated with hositility to his environment. This hostility may be turned inward with self-destructive wishes. Drugs relieve the frustrated feelings, and since society frowns on addiction the self-destructive impulses are satisfied. At the same time, guilt, the counterpart of hostility, is also assuaged. Attacks upon the self-esteem of the individual

result in depressive phases also relieved by drugs. Fantasies replace reality and satisfaction ensues until the effects of the drug wear off and the problems of reality again appear. For these reasons narcotics become so important to the addict that he will resort to a variety of antisocial acts to obtain them or the money to procure them. The degree or seriousness of the antisocial behavior is somewhat related to the underlying character disorder of the particular individual. The more hostile and aggressive he is, the more serious the activity to obtain the needed drugs.

Usually addicts tend to be passive, manipulative, and narcissistic. They want to be loved but do not know how to achieve it. Some addicts, of course, mature with time and make a variety of adjustments with society. How many is anyone's guess. A few studies indicate that the age incidence of addiction is greatest in the second and third decade of life. Since this pattern also occurs to a greater or lesser degree in other delinquent or emotionally maladjusted people who oftentimes adjust in later life, it is reasonable to assume that it may operate in the narcotic addicts. There is some evidence that the adage "once an addict, always an addict" may not be true.

VOL. 9 1959

It is apparent that addicts are sick people and should be treated as such. There is little evidence that punitive management does more than increase the hostility of the patient. The addict fails to learn by being "beat upon" or from excessive kindness since the latter is the old pattern of the environment in which his personality developed. A firm but sympathetic approach is of the utmost importance. He will manipulate those treating him if he can. In many instances, through careful and long-term treatment, he may be brought to some social adjustment without the use of drugs.

CIRCUMSTANCES IN WHICH TREATMENT CAN BE GIVEN

The more recent enactments of state laws relating to narcotic addiction make it increasingly difficult to provide general information of use to the physician who attempts to manage or treat the narcotic drug user. While Federal law does not make it an offense to be an addict, it is an offense to be in possession of illegal narcotics or to obtain narcotics illegally.

Several states, e.g., New Jersey, Illinois, California, and Missouri, have laws making drug addiction a violation. New York State requires mandatory registration of addicts. The physician should acquaint himself with the laws in his state in which his legal responsibilities in relation to drug addiction are described before embarking on the treatment of an addict.

It is generally agreed that most addicts require some form of hospitalization during withdrawal. At present, the practice of providing an addict withdrawal treatment on an ambulatory basis is not condoned.[11]

Once the addict demonstrates a bona fide willingness and has made arrangements for institutional treatment, a minimal amount of narcotic may be administered to him to prevent the withdrawal illness until he reaches the hospital.[12]

At least 38 states provide by law for the voluntary commitment of addicts to state hospitals. Many states will recognize the treatment at the U. S. Public Health Service Hospitals at Lexington and Fort Worth as a substitute. Appli-

cation by letter, telegram, or telephone can be made to the respective medical officers in charge.[13]

A few cities are planning to provide treatment of addicts in local hospitals. Occasionally arrangements can be made on an individual case basis to provide this treatment in any local hospital.

In all except a few rare instances, the addict will require the strictest supervision during withdrawal. Even under optimum circumstances of the gradual reduction treatment, the addict will be most demanding and attempt by devious means to delay the withdrawal. He may and frequently does refuse to complete treatment.

It may be necessary to resort to coercion or involuntary commitment to a hospital for treatment. Such a program is provided through legal process by many states although it is infrequently used. This is due, in large measure, to a reluctance on the part of state hospital superintendents to take addicts as patients, since they require special programs for treatment.

L.
959

GUIDING PRINCIPLES

Certain general guiding principles for the treatment of addicts may be stated. A most succinct summary is found in the *World Health Organization Bulletin*[14]:

> . . . Treatment must be based upon a study of the individual personality. The main characteristic of treatment will therefore be its psychotherapeutic nature and it will not be fundamentally different from that used in the psychotherapeutic management of other personality problems. Such treatment should aim at giving the patient more insight into his problems, some understanding of the unrealistic character of his neurotic fears and wishes and a better judgement of situations, thus enabling him better to respond to the unavoidable stress of life.

PROGRAM OF TREATMENT

The medical treatment of the addict should be total and comprehensive. It should encompass the physical, psychologic, and social rehabilitation of the individual. A good medical treatment program should include three phases: preparation of the patient, withdrawal, and continued treatment.

The preparatory phase should include an assessment of the drug used, the length and degree of use, an inventory of the personality structure of the patient, and definition of his problems. A careful study of his family and social relationships may provide clues to assets or liabilities that must be weighed in relation to future planning and treatment. One must understand his motivations and determine the best means of channeling these to further the therapy. After careful evaluation of all of these factors, a plan should be prepared and discussed with the patient. This serves two purposes—it helps to allay his anxiety and provides stimulus to promote recovery. The physician-patient relationship is most important and can have a profound effect on his recovery.

The next stage, that of withdrawal, is in most instances an uncomfortable process unless carried out with skill and understanding. At the risk of perpetuating the undue concern about withdrawal techniques that have bemused physicians for the last half century, perhaps a summary of some of the more recent

proposals would be of value. It is hoped that such a review will provide answers for those who have neither the knowledge, training, nor experience to evaluate the proposals. This statement by Kolb and Ossenfort[15] in 1938 is pertinent: "The bulk of the literature on the treatment of drug addiction is concerned only with the withdrawal stage. . . . Some of these methods are harmful . . . a large proportion are useless, and all are successful, provided the opiate is withdrawn and the treatment is not so strenuous as to kill the patient, a result that is too often achieved."

This does not gainsay the necessity for a sympathetic, scientific, sound, humane procedure.

There are a few physicians who abdicate their medical responsibilities in favor of moralistic judgments and refuse addicts the benefit of current knowledge of treatment. Such statements as "We do not want to coddle the addict," and " 'Cold turkey' (abrupt withdrawal) will teach him a lesson" are manifestations of this abdication.

There is yet to be developed a drug or treatment which substitutes for a narcotic in the withdrawal phase of treatment. The reports of the effectiveness of the "tranquilizers," the latest of the new techniques, and the rejuvenation of electroshock, insulin shock, and barbiturates, to name a few, betray a lack of knowledge of the phenomenon of physical dependence and the attendant withdrawal syndrome.

There are two general categories of withdrawal: (1) the withdrawal of narcotics with varying degrees of rapidity, and (2) the immediate denial of narcotics and the institution of other drugs or therapies.

The Withdrawal of Narcotics in Varying Degrees.—Withdrawal can be subdivided into:

A. The prolonged gradual reduction over a period of weeks or months using the actual agent of addiction: Supportive drug therapy may include sedatives, such as barbiturates, bromides, scopolamine, atropine, hyoscyamus, and more recently chlorpromazine, reserpine, and meprobamate. The method is not recommended except in the most severely debilitated persons suffering from a serious physical illness.

B. The rapid withdrawal of narcotics accomplished over 7 to 14 days. Supplemental drug therapy may include the sedatives mentioned in *A*.

C. The substitution of other narcotics for the drug of addiction with subsequent use of method B: This method, now standard in the United States Government Hospitals, utilizes divided daily oral doses of an elixir of methadone (usually 10 to 15 mg.) given in amounts calculated to keep the patient on the edge of early withdrawal signs and is accomplished in 5 to 10 days.

The Methods of Immediate Denial of Narcotics.—These include:

A. Abrupt cessation of the administration of narcotics or any other drug ("cold-turkey"): Supportive therapy, such as intravenous fluids, cardiovascular stimulants, etc., are used in instances of severe collapse.

B. Abrupt cessation of narcotics except that other nonnarcotic drugs may be substituted: Some of the substitutions are barbiturates, calcium gluconates, scopolamine, hyoscyamus, chlorpromazine, reserpine, and meprobamate.

C. Abrupt cessation with electroshock or insulin shock periodically induced:

Of these several methods, the most efficient, humane, and best calculated to establish the proper rapport with the patient is the use of a narcotic in gradual withdrawal. The dosage may be geared to the needs of the individual. The rate and amount may be adjusted to the level of addiction, other physical disabilities such as pulmonary and heart diseases, or severe debilitation from other causes. It is a tested and safe method relatively simple to learn and perform if the established guidelines are carefully followed.

Other methods, the so-called "masking treatments" because they hide the symptoms of withdrawal without alleviating them, are potentially dangerous. The World Health Organization Study Group[14] stated: "With reference to the so-called 'masking treatment,' with, for instance, barbiturates, chlorpormazine, etc. . . . —which often make the withdrawal unnecessarily dangerous, particularly so in view of the relatively low risks involved in the methadone substitution technique—although these drugs may be useful after withdrawal from opiates has been completed. . ."

OL.
9
959

As soon as possible after withdrawal, such measures as are needed should be initiated to alleviate any remediable somatic diseases or abnormalities. At times the existence of certain diseases may properly delay or prolong withdrawal. For the legal use of drugs in this regard, see Pamphlet No. 56, U. S. Treasury Department, Bureau of Narcotics.

Most otherwise healthy patients quickly regain their physical equilibrium after withdrawal. Food suddenly becomes very important; life looks brighter. This is a dangerous period in treatment. Many addict patients falsely assume that the worst is over and desire to leave treatment under the delusion that they are "cured." Relapse is practically assured for any patient who pursues this course. It is necessary that the physician move into the situation immediately to provide emotional support and begin the active phase of continued treatment.

In certain cases continued treatment may be carried on outside the hospital. For this method strong personal motivation is of paramount importance. Adjunctive assets, such as a job, family support, and spiritual guidance by the minister, priest, or rabbi, are of inestimable value.

Most patients require a continued intramural environment for extended periods of time, weeks or even months, in order that they may undergo a period of self-reassessment and learn to live without drugs. Such programs should be flexible enough to allow for the individual to assume full responsibility for himself, when indicated.

The optimum intramural program should be psychiatrically oriented and should include the basic requisite of psychotherapy, useful vocational duties, retraining, or learning of new skills. The therapeutic team concept as developed at Lexington, Fort Worth, and Riverside Hospital in New York combine the best features. There are many possible variations. The effectiveness will depend, in part, on the experience and skill of the team members. The details of such programs need not be reiterated here. There is no one program more suitable than another. Existing programs in state mental hospitals and progressive penal institutions have incorporated the major features of such programs.

There is a need for a variety of intramural programs designed to aid the addict patient. The World Health Organization Study Group[14] summarized this succinctly:

> It would seem advisable to provide a graded series of environmental conditions for treatment. The determination of the degree of security required in any given case should be left to the judgment of the physician. This grading process would extend from the maximum security of locked wards down through open wards, the "half-way house" (controlled or sheltered environment) in the community, to a controlled environment in the home, where, with the help of his private doctor or community public health officer, the former addict may finally return to self-supervision. The placing of the addict in any given step in this process would depend in some degree on the evaluation of several factors, such as his personality development, family identification, degree and extent of drug use and certain community attitudes. The placement should not depend only on his taking or not taking drugs, but should take into account the whole situation. It should be made clear that no part of the above process implies penological coercion.

Noteworthy in the area of community rehabilitation programs are those at the Provident Hospital and Northwestern Clinics in Chicago, the Narcotic Clinic of the City Health Department in Detroit, and the New York City Riverside Hospital After Care Clinic. Recently the National Institute of Mental Health of the Public Health Service has established a demonstration social service program in New York City to provide liaison with community rehabilitation services for addicts discharged from Lexington. A combined program for intra- and extramural treatment is being developed in California under special legislation. None of these programs, however, have had sufficient long-term experience under optimum circumstances to evaluate their results properly.

PROBLEMS OF RELAPSE

So far an undue emphasis has been placed on the intramural aspects of treatment. The work of Pescor[16] in 1938 and unpublished studies by the Public Health Service indicate that the length and circumstances of hospitalization either as voluntary or penal commitment has little bearing on the rate of relapse. Some of the meaning of these observations has not been fully realized until recently. Studies at the Riverside Hospital in New York as well as follow-up studies of Lexington dischargees to New York City indicate a correlation between the use and availability of aftercare and rehabilitative facilities and the rate of relapse. Such problems as housing, jobs, and someone to discuss problems with are of great significance. There is an obvious need for continuance of the intramural program into the community.

The expression of the World Health Organization Study Group[14] is of significance:

> Since the bulk of the time of continued treatment will often be spent outside institutions, every effort should be made to enlist all community agencies, such as social service, family welfare, mental health clinics, vocational rehabilitation, employment services, etc., to provide and assist in community adjustment for the returning addict. It is in the community that addiction starts and it is in the community that the final phase of adjustment and adaptation should occur. In some cases group psychotherapy for the addict's family will be found to be necessary.

VOL 9 195

Recently advocated in California[17] is a program for a check on the treated addict after his return to the community. This calls for the use of the drug N-allyl-normorphine—known as nalorphine or by the trade name "Nalline." This drug has the effect of immediately counteracting the action of morphine and precipitating the withdrawal syndrome in the chronically addicted narcotic addict. In brief, the supposed addict is subjected to the injection of this drug under controlled conditions and the effects are measured by the dilation of the pupil of the eye and the general signs of withdrawal. The subject must sign a release for this procedure. Since an overdose in a person well addicted can have serious results, the test should be carried out by a skilled physician in a hospital or outpatient clinic setting.

While such a procedure may have a certain value as a deterrent to relapse, it should not be substituted for or thought to serve as a short cut for adequate community rehabilitation techniques. I am personally disposed against its use as an involuntary coercive measure to prevent relapse. This procedure needs further evaluation from a technical standpoint. It is expensive—a costly procedure from the personnel standpoint if adequate medical safeguards are established.

OL.
9
959

Since this drug was first known, many of us have been interested in the possibilities of its use on a voluntary basis in a not dissimilar fashion to the use of "antibuse" by the alcoholic.

The final topic under the heading of treatment is, paradoxically, the decision not to treat. In brief, this includes the many plans such as that suggested by the New York Academy of Medicine[18] for providing certain addicts with drugs after all other efforts to rehabilitate them have failed. Some countries allow such plans and claim that they work satisfactorily. Whether such plans would reduce the incidence of addiction by removing the addict who peddles drugs in order to sustain his addiction is not possible to determine.

I would agree with the recommendations of the Report on Narcotic Addiction of the Council on Mental Health of the American Medical Association[11]:

> Clinic Plans.—In view of all of the available evidence at the present time it does not seem feasible to recommend the establishment of clinics for the supply of drugs to addicts. This is true for the Eggston resolution and the plan of the New York Academy of Medicine, even though there are many aspects of these plans that could be looked upon with favor. This opinion should be subject to frequent review in accordance with new scientific knowledge that may become available.
>
> Continued Study.—It is recommended that the American Medical Association continue to study the narcotic laws with the view of further clarification of the rights and duties of physicians and allied professional persons in the handling of addicts. The phrases in the current law ". . . in the course of professional practice only" and "prescription," remain vague and confusing, despite Supreme Court decisions. Regulations on dispensing drugs to addicts should be eased so that the patients can have a reasonable time to arrange their affairs prior to entering a hospital for treatment. The 1924 Resolution of the House of Delegates should be revised. Consideration should be given to broadening the Resolution to include a plan endorsing regulations somewhat similar to those currently in force in England.

We are in need of some review of the current procedures which pay only lip service to treatment and provide some means for bringing the physician into

the picture. In my 12 years of studying the problems of treating drug addicts, I have yet to see an addict "cured" of his addiction by being sent to jail. To be sure, he is off drugs while there but can we and should we keep him there forever?[2]

Good follow-up studies are unavailable. Many former addicts disappear from view after a few years. Casual scrutiny of some of the preliminary figures developed in the New York follow-up study on Lexington dischargees indicates that after age 30 the tendency to relapse decreases. A longitudinal study of the life span of many addicts over a period of 10 or more years is needed to provide positive answers. The Public Health Service is currently engaged in such a project.

SUMMARY

Drug addiction is a relatively small but serious problem in the United States. The bulk of known addicts are related by necessity to antisocial activity. The lesser fraction seen by the average physician usually have medically related problems. By and large, addicts should be treated in a hospital for withdrawal and prolonged continued treatment; some will benefit by shorter periods of intramural care; all require extensive posthospital supervision with intensive application of rehabilitation techniques. Withdrawal treatment can be quickly and humanely accomplished by the gradual reduction method. By the nature of the personality problems, addicts are difficult to manage and have a marked tendency to relapse. Carefully planned total programs both in the hospital and the community should reduce the relapse rate.

VOL. 9 1959

REFERENCES

1. Chapman, K. W.: Drug Addiction: The General Problem, Fed. Probation, September, 1956.
2. Chapman, K. W.: The Addict and the Community, Fed. Probation, March, 1957.
3. Kolb, L.: Let's Stop This Narcotics Hysteria! Sat. Eve. Post, p. 19, June 28, 1956.
4. Wikler, A.: Opiate Addiction: Psychological and Neurophysiological Aspects in Relation to Clinical Problems, Springfield, Ill., 1953, Charles C Thomas, Publisher, p. 72.
5. Kolb, L., and Himmelsbach, C. K.: Clinical Studies of Drug Addiction: II. A Critical Review of the Withdrawal Treatments With Method for Evaluating Abstinence Symptoms, Federal Security Agency, U. S. Public Health Service, Public Health Reports, Supplement 128, 1938.
6. Isbell, H.: Addiction to Barbiturates and the Barbiturate Abstinence Syndrome, Ann. Int. Med. **33:**108, 1950.
7. Chein, I.: Narcotics Use Among Juveniles, Social Work **1:**50, 1956.
8. Chein, I.: The Environment as a Determinant of Behavior, J. Soc. Psychol. **39:**115, 1954.
9. Chein, I., and Rosenfeld, Eva.: Juvenile Narcotics Use, Symposium on Narcotics, Law and Contemp. Prob., Winter issue, 1957.
10. Wikler, A., and Rasor, R.: Psychiatric Aspects of Drug Addiction, Am. J. Med. **14:**566, 1953.
11. A.M.A. Council on Mental Health: Report on Narcotic Addiction. J.A.M.A., **165:**1707,-1834-1968, 1957.
12. A.M.A. Council on Pharmacy and Chemistry, J.A.M.A. **149:**1220, 1952.
13. Lowry, J. V.: Hospital Treatment of the Narcotic Addict, Fed. Probation, December, 1956.
14. World Health Organization, Study Group on the Treatment and Care of Drug Addicts: Treatment and Care of Drug Addicts, World Health Organization Technical Report Series, No. 131, 1957.
15. Kolb, L., and Ossenfort, W. F.: The Treatment of Drug Addicts at Lexington Hospital, South. M. J. **31:**914, 1938.
16. Pescor, M. J.: Follow-up Study of Treated Narcotic Drug Addicts, Federal Security Agency, U. S. Public Health Reports, Supplement No. 170, p. 1-18, 1943.
17. California Health and Safety Code, Section 11722.
18. New York Academy of Medicine, Committee on Public Health, Subcommittee on Drug Addiction: Report on Drug Addiction, Bull. New York Acad. Med. **31:**592, 1955.